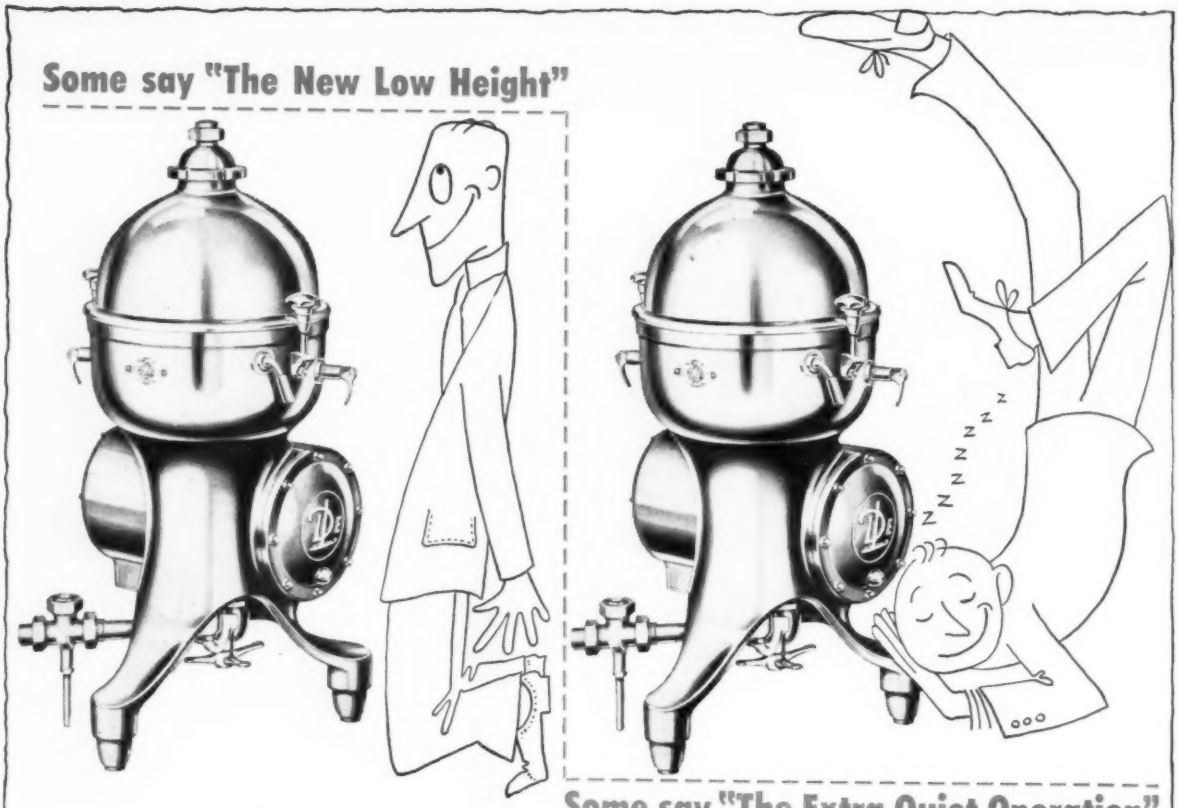
American MILK REVIEW

AMERICAN MILK REVIEW BUTTER REVIEW EGG & POULTRY REVIEW

AN URNER-BARRY PUBLICATION

BEHIND EVERY SEPARATOR IS AN EPIC OF FLAMING STEEL AND HIGH PRECISION

Some say "The New Low Height"



Some say "The Extra Quiet Operation"

WHICH FEATURE DO YOU LIKE MOST?

The new De Laval 200 Series "Air-Tight" Milk Clarifiers embody 9 new mechanical features that are reflected as operating advantages. Some operators indicate that they especially like the new frame, approximately seven inches lower than that of older "Air-Tight" models. Wash-up crews say the new low height makes the bowl even more accessible than before.

Some plant men say that the extra quiet operation of the bowl which floats in rubber is the most important new feature. They appreciate the fact that even the ball feet are cushioned in rubber. Every detail of the new 200 Series machines insures unusual quiet.

Each man to his choice — but every "Air-Tight" owner (whether he has the new 200 Series or the older 100 Series) gets the same basic design features that have for years made the "Air-Tight" the Standard of the Industry. *Every* "Air-Tight" Clarifier removes sediment from milk most efficiently. *Every* "Air-Tight" Clarifier operates at either high or low temperature. And *every* "Air-Tight" Clarifier helps to improve the flavor of the milk.

NINE ADVANTAGES OF "AIR-TIGHT" 200 SERIES CLARIFIERS

1. New low frame — easier disassembly
2. Bowl floats in rubber — extra quiet
3. Feet cushioned in rubber — vibrationless
4. Lower inlet pressure — less pump wear
5. Shorter spindle — more rigid assembly
6. No clutch — worm wheel keyed to shaft
7. New seals designed for longer wear
8. Streamlined surface, sanitary and beautiful
9. Frames of 1: cast-iron or 2: non-corrosive metal

De Laval

Standard of the Industry

"AIR-TIGHT"

CREAM SEPARATORS and MILK CLARIFIERS

Stainless Steel Equipped

THE DE LAVAL SEPARATOR COMPANY
165 Broadway, New York 6 • 427 Randolph St. Chicago 6
DE LAVAL PACIFIC CO. • 61 Beale St., San Francisco 5
THE DE LAVAL CO., Limited • Peterborough, Ontario

American Milk Review — April, 1949. Published monthly by Urner-Barry Company at 92 Warren Street, New York. Domestic subscription $3.00 per year; foreign $3.50 per year. Acceptance under the act of June 5, 1924, authorized May 14, 1948.

How SOLVAY Cleanser No. 600 Makes Dairy Cleaning EASIER—MORE EFFECTIVE

SOLVAY TRADE-MARK REG. U.S. PAT. OFF.

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Less Labor

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Added Versatility

Less Cost

YOU WILL AGREE that cleaning jobs in the dairy are specialized jobs which call for a specialized cleanser. SOLVAY CLEANSER NO. 600 was designed specifically for difficult dairy cleaning operations . . . such as you encounter every day in your work as a dairyman.

IT WORKS FASTER! The moment you start the cleaning job, the exclusive combination of wetting agent and other properties goes right to work. It penetrates the dirt; gets under it; loosens it; emulsifies it—lifts it off the surface! It wets the soil; breaks it into minute particles; suspends it so it can be easily carried off in the rinsing operation!

IT MAKES CLEANING EASIER! SOLVAY CLEANSER NO. 600 is fortified with multiple action to attack stubborn, sticky soils from the top as well as from underneath. Special ingredients give this power-packed cleanser unusual strength . . . help lessen your cleaning job. It's safe, too—"600" will not harmfully affect the skin or the surface being cleaned. Use it on painted surfaces, nickel, tin, chrome, tiling, glassware, or practically anything in the dairy!

THE RESULT... equipment is left sweet, bacteria count extremely low—the two most important factors in dairy cleansing. SOLVAY CLEANSER NO. 600 is available for immediate delivery in convenient packages to suit your particular needs—5, 115 and 250-pound packages. Order today from the nearest SOLVAY office.

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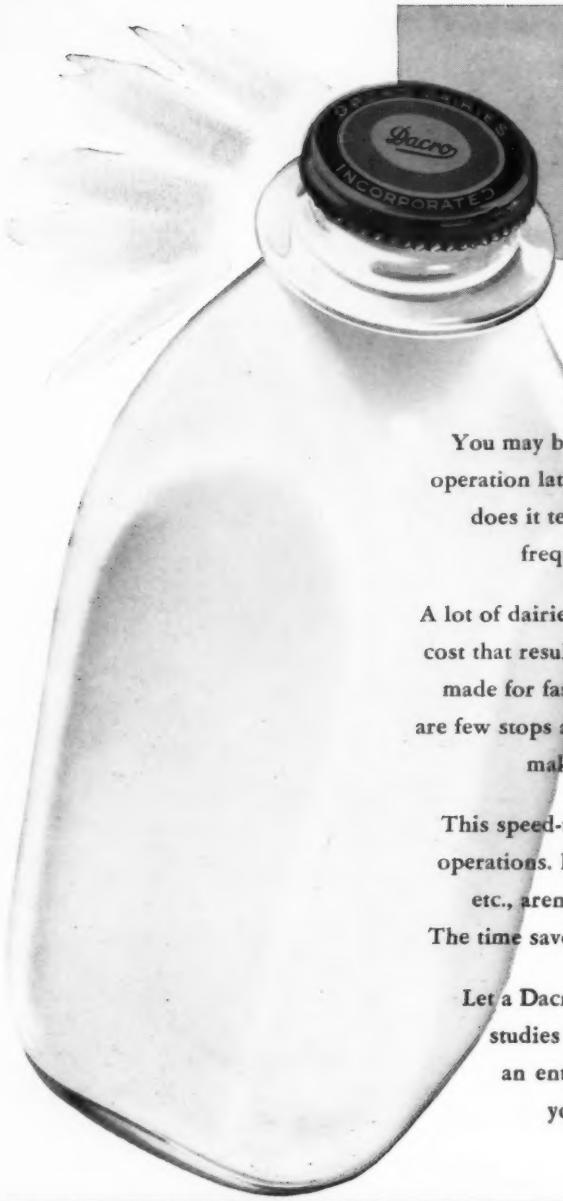

You may be missing a bet if you haven't checked up on your capping operation lately. Is it fast enough to set the pace for your whole line or does it tend to hold up other equipment because of slow feeding or frequent stops?

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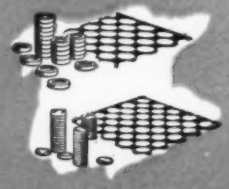
Let a Dacro Sales Representative show you some of the performance studies which have been made in Dacro P-38 plants. You will get an entirely new idea of the savings Dacro P-38 might effect in your own operation.



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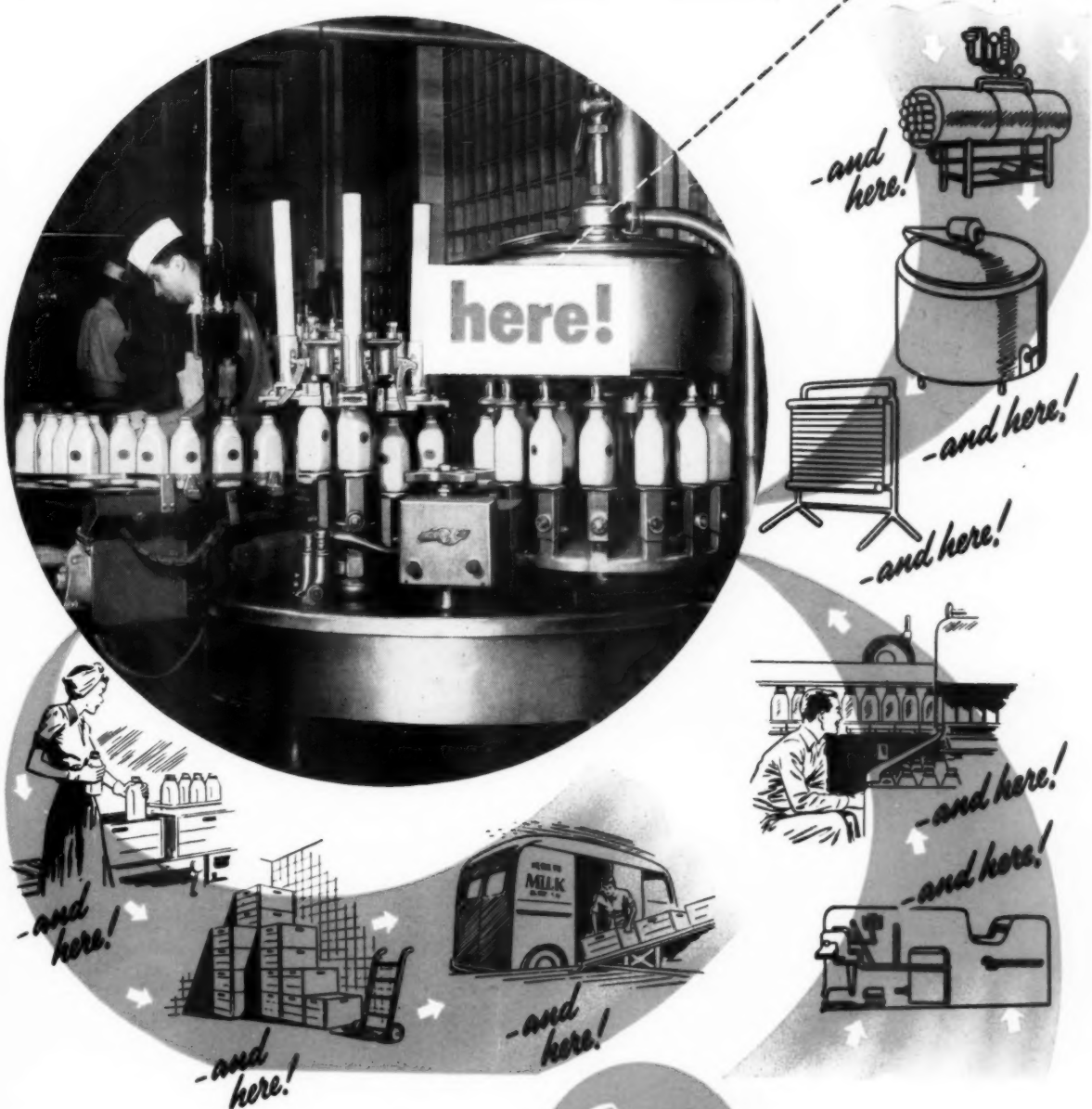

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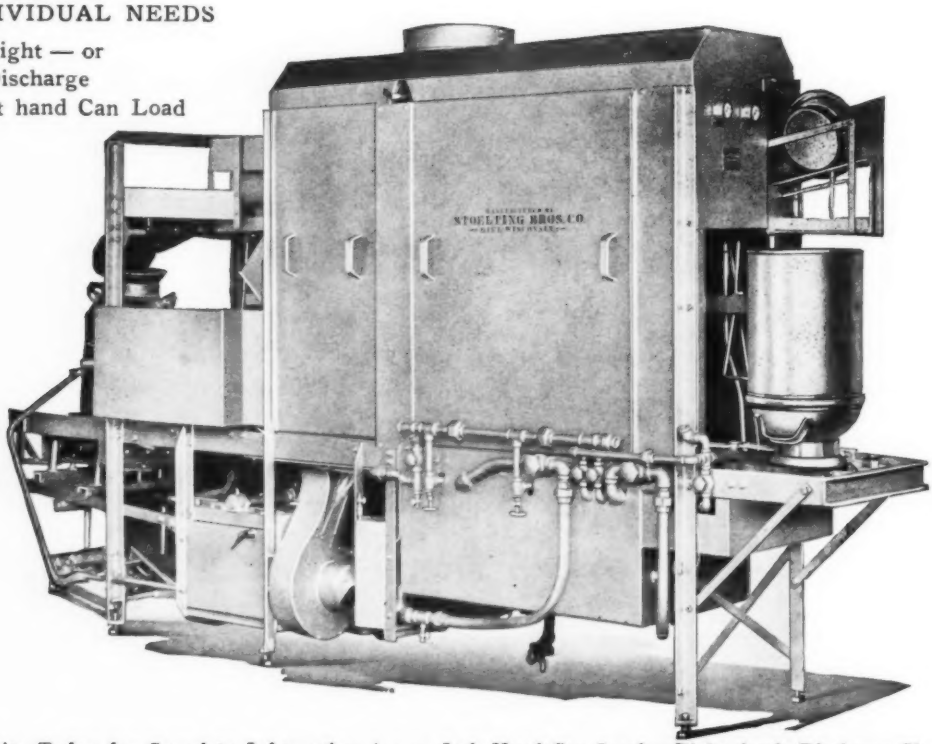

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KIEL, WISCONSIN

American MILK REVIEW

VOLUME 11 - - APRIL 1949 - - NUMBER 4

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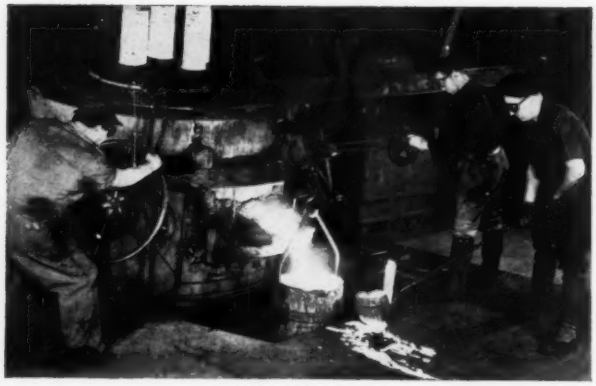
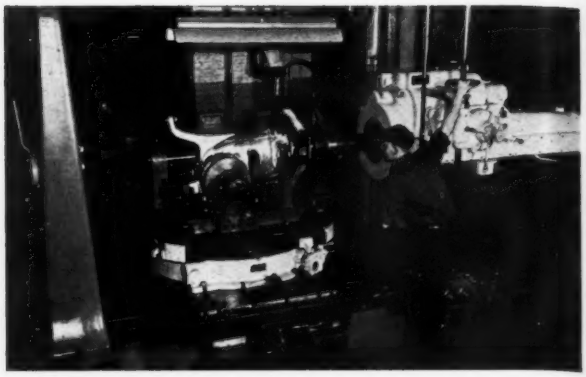


Molten steel leaping from the furnace marks the beginnings of another separator. Metal is carried to molds where the pouring operation takes place. Note leg guards on the two men at the right.



Machining operations on separator frames are performed on large boring mills. To insure against misalignment and eccentricity all boring and facing is done in one setting.

A Fascinating Story of Blazing Metal and Shining Steel, of Engineering Skill and Machine Shop Accuracy is Told in This Article on - -

How SEPARATORS AND

***By* NORMAN MYRICK**

THREE HUNDRED AND SIXTY feet per second is better than four miles a minute. That's a fast trek. A matter of twenty minutes from New York to Philadelphia, a hundred and eight minutes from Chicago to New York, forty minutes from San Francisco to L.A. At that speed it might even be possible to cross Texas between sun-up and sun-down. When Malcom Campbell hurled his racer across the salt flats of Utah at five miles a minute he steered by gun sights. A small deflection from his prescribed course could have spelled disaster. At those tremendous speeds nature has little tolerance with errors. As the speeds increase the tolerance decreases. The equipment and men must be right.

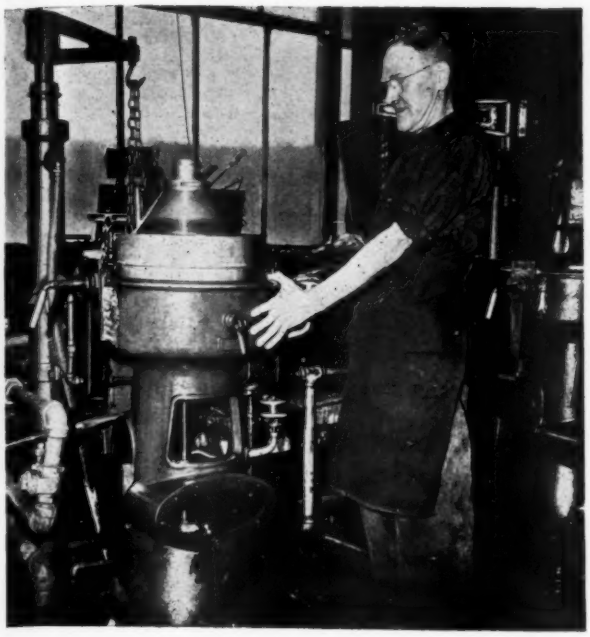
The bowl in a cream separator moves at 6000 revolutions per minute. On a fourteen inch bowl that is 22,000 feet every 60 seconds. Think what that means. If you work with reasonable alacrity you can put a cigarette in your mouth, light it, blow out the match, and take the first drag in a matter of ten seconds. During that time the bowl on your separator has made a thousand revolutions, a thousand turns while you were lighting a cigarette. All the Dervishes in the Sahara can't whirl that fast. The modern milk plant has a dozen pieces of equipment that are marvels of engineering skill but for sheer accuracy of construction, for ability to stand up under the inexhorable dictates of force and speed the separator, hiding its mighty power under a deceptively contented purr, is truly of royal blood.

Speed Demands Accuracy

A separator is not a particularly complex machine. It consists, as every dairyman should know, of a frame, a bowl assembly including discs, bowl shell, top coupling ring, and spindle, a series of valves and fittings, a drive mechanism, and a motor. With the exception of the motor which is built by firms whose business it is to manufacture such equipment, the elements of a separator are treated as individuals as they move step by step to the assembly point. Even the discs, which have the appearance of a mass produced article, are spun out individually on a special machine and are made accurately to exacting specifications. And when once teamed up with the bowl to perform their separating function each disc must always be placed in its own individual position in relation to the whole assembly. At 6000 RPMs there is no room for guess and by golly.

Separators begin on the drawing board. Many industries other than the dairy industry use separators and clarifiers. Clarifiers are widely used in the chemical and oil industries as well as in the manufacture of pharmaceuticals. They are used in dehydrating processes and in the manufacture of blood plasma. During the war one of the reasons why sepa-

In order to obtain material for this series of articles on separators and clarifiers the editor of the American Milk Review visited three plants engaged in the production of these splendid pieces of equipment. We are indebted to the De Laval Separator Company, The Sharples Corporation, and Columbia-Westphalia Centrifuge, Inc., for their courtesy and assistance in making these stories possible.



Balancing the bowl is an art. On this machine the separator bowl with its cover and coupling ring are revolved at 7000 RPMs. By placing a crayon against the revolving parts the operator can determine at what point corrective measures must be applied.

After assembly each separator or clarifier is tested for a period of several hours in order to be certain that it will operate smoothly and quietly, will consume no more than its normal electrical input, and is free from leakage and other possible defects.

CLARIFIERS ARE MADE

rators and clarifiers were hard to find was because a large part of the plants manufacturing the machines were devoted to constructinng oil clarifiers to meet the tremendous demands of the armed forces. As a result of these varied uses many types of machines are needed. Constant improvement in design dictated by the realities of a competitive economy mean that the engineering laboratory and the drafting room can never let up.

The manufacturing process is a multiple operation. In the foundry, the forge shop, and the machine shop different parts of the machines are being made concurrently all to meet at precisely the right time on the assembly floor.

Sand, Steel and Fire

Separator frames are castings. The foundry, where molten metal is poured into molds made of sand, is a spectacular tableau of smoke and fire. Foundries are apt to be gloomy, cavernous places where the earthen floors muffle sound. An impression of twilight prevails that is periodically shattered when a furnace is tapped and the metal flows into the pouring ladles like a stream of fiery milk.

Making the molds into which the liquid metal is poured is an art in itself. Patterns are made from wood and the molding sand is tamped in around the pattern. The pattern is removed but leaves its imprint in the sand. On some castings the mold thus made is placed in a huge oven and baked before it receives the metal while in other cases the metal is poured without resorting to the baking process. Molders in most foundries, particularly those men who are making small molds, work on a piecework basis. Those boys waste little time talking about the weather. A good molder will move from one operation to the next without any perceptible change in the tempo of his movements. One operation flows into the next. He will shovel sand into his mold and when enough sand has been put into place he will let go of the shank of the shovel with his right hand and reach for his tamping rod while at the same time using his left hand to flip the shovel back into the sand pile.

All the preliminary work in the foundry, making the pattern, making the mold, charging the furnace, leads to one end, "pouring". Pouring is a tricky operation. The casting must be as close to the specifications for the finished piece as possible in order to avoid costly machining to get it down to size. The sand must have the right moisture content, too much moisture in the sand will create steam pressures which have a bad habit of blowing the mold into that particular realm reserved for wet molds. The finished casting must be sound without pin holes or bubbles to mar its strength. Furthermore, many castings especially the separator frames, are shells; that is there is an outside mold that provides for the external contours of the casting and a core or internal mold inside of the outside mold that provides for the shape of the interior of the casting. To have every thing exactly right so that the metal flows to all parts of the mold resulting in a strong unblemished shell is a triumph of foundry technique.

Pouring Is the Climax

It is a good deal like the climax in the first act of a fine play to see the pouring operation. The molds are all in place. A knot of men gather around the furnace and place a ladle that looks for all the world like a nail keg in position to receive the molten metal. At a signal the furnace tips forward and the white, glowing metal pours into the red hot ladle. A foreman measures the temperature of the metal with an optical pyrometer, a long rod on one end of which is mounted a thermometer. A carrying device that consists of a long steel rod forked at both ends and having a loop in the center that holds the ladle is manned by the two men that will do the pouring. They take the batch over to the molds, check the temperature a second time and, when it is at the proper heat, grasp the forked ends of the carrying rod and pour the

metal into the molds. Little tongues of flame shoot up from the sand as the metal goes home, then subside into sullen smoke like miniature volcanos.

When they have cooled, the castings go to the grinding shop where the rough edges are taken off, some by grinding wheels, some in huge oven-like sand blasters. Back in the main foundry the molders pound their sand and the huge overhead crane drops its magnet into the scrap pile and picks up a half a ton of steel for the furnaces as the act begins all over again.

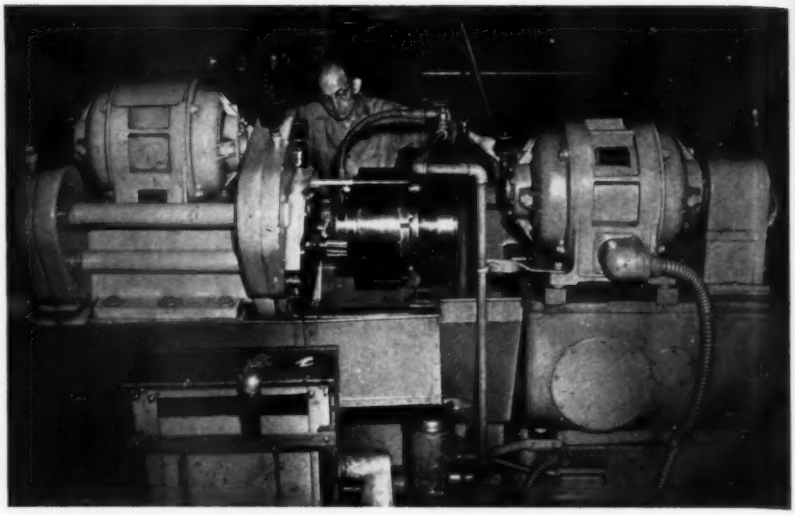
In many respects the forge shop is similar to the foundry. There are the bright searing shafts of heat from the furnaces and the smell of hot steel. But here there is the turbulent bass of the hammers that fashion the flat steel into bowl shell, coupling ring, and top. A casting is liquid metal poured into a mold and allowed to harden into the form established by the pattern. A forging is a shaping operation where the metal is heated to a point where it becomes easily malleable.

Forgings Means Strength

The simplest forging is a piece of iron or steel heated in the fire and then hammered out by hand on an anvil. In the case of separators however, the fine balance that is demanded of an instrument that must rotate at 6000 RPMs, and when assembled, weighs close to 300 pounds calls for a more refined technique. Also the tremendous pressures developed by centrifugal force as the bowl is in operation must be resisted. A forging is stronger than a casting, consequently bowls are forged rather than cast.

The bowl shell and top are actually hammered out flat steel. A series of dies or molds of steel are used. The dies approach the finished shape of the bowl and cover in easy stages. It is a sort of evolutionary process with each die adding to the shape of the metal until it emerges as a fully shaped shell or cover. The steel is heated in a forge and placed in the die. Then the big power hammer smashes down and forces the metal into the shape dictated by the die.

Both castings and forgings must go to the machine shop for finishing. If the foundry and the forge are dramatic the machine shop is a study in precision and ingenuity. Here are the lathes and the millers, the drill presses and the boring machines that work down to within one ten thousandth of an inch. Split a human hair thirty times and you have that tolerance. Here the bearing surfaces are machined down so bowl and cover seat perfectly. Here the threads are cut so that the coupling ring can be screwed into position in order to hold the bowl and cover as a single unit against the terrible force that the speed of rotation generates. Here the gears are cut and the spindles turned out on the automatic lathes. Here, too, the discs are spun in a fascinating gleam of whirling magic.



A thread miller goes into action. Thread milling is employed to assure maximum smoothness for the threads on bowl shells. These threads engage with those of the ring which couples the bowl top to the bowl shell. Thread milling is done with a special adapter to insure concentricity.

Machine Shop Magic

Those discs; it is like watching a magician at work to see them turned out. A ribbon of stainless steel slightly wider than the largest diameter of the discs is fed into a machine that stamps out a round flat piece of metal the size of the finished disc. At the same time the machine punches a hole in the center for the tubular shaft. The result is an over sized doughnut. This doughnut is then mounted on a lathe so that the flat surface is perpendicular to the bed of the lathe. When the power is turned on, the piece rotates at a fast clip. A wheel mounted on a steady rest and set at a calculated angle to the surface of the disc is brought to bear against the metal. The point at which contact is made is the distance from the edge of the tubular shaft hole to the spot where the slope begins on the finished disc. The spinning wheel presses against the surface of the flat disc and literally spins it out into a cone. As one watches the operation one is aware at first only of a widening circle, as though the spinning wheel were merely moving across the surface of the flat disc and leaving a mark. It is not until the cone is half finished that one suddenly realizes that the spinning wheel is moving down as well as across. What the spinning process actually does is to spin out the metal; that is, the metal in the cone is actually thinner than the metal in the upper and lower rims of discs. From the spinning process the discs go to the welders who put on the tiny spots of metal that provide for the space between the stacked discs through which the milk flows when the machine is in operation.

Balancing Bowls Is an Art

There are a score of operations in the machine shop that are breath taking in their complexity yet are done with such marvelous equipment, that once the machines are set up, the operation proceeds automatically. At the De Laval plant in Poughkeepsie, New York, there is a machine that performs six different operations, one operation on each of six separate pieces of stock, all at the same time. When each of the six operations has been completed the huge chuck which holds the stock rotates a sixth of a turn and the machine swings into action again. The stock is fed into the machine automatically and when it has passed through the six stages of machining it is automatically ejected and a new piece of raw stock takes its place.

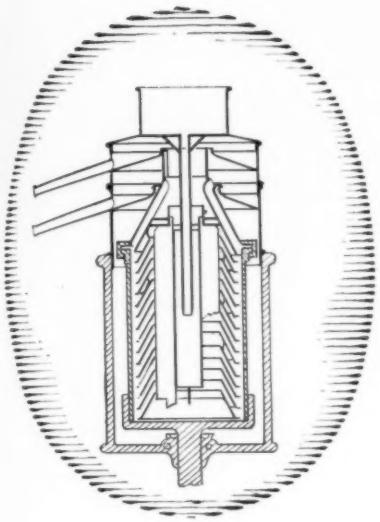
At the Sharples plant in Philadelphia they have a machine called a thread miller that, among other things, is used to cut the threads in bowl shells. The bowl is dogged onto the chuck and the cutting die adjusted. When the power is turned on the die rotates against the rim of the bowl shell and the bowl shell makes one very slow revolution. This one revolution takes about ten minutes. When that one revolution is finished the machine has cut the threads, removed imperfect threads, formed the pilot, that is the space between where the threads begin and the bearing surface of the bowl shell made the slope at the beginning of the threads, and put a 1/64 inch radius on the top edge of the thread. All of this with one pass of the machine.

In spite of the meticulous work that goes into the production of separators, it is seldom that a bowl can be built that is

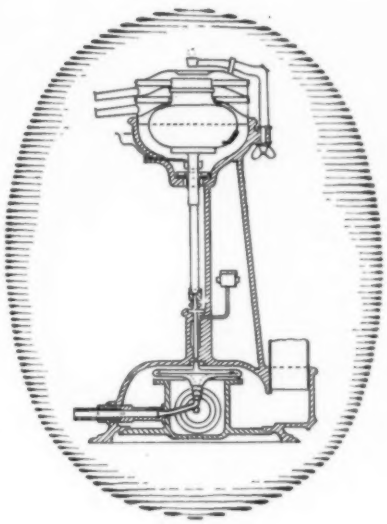
(Please Turn to Page 55)

SEVENTY-ONE YEARS *of* PROGRESS

From the Mind of a Swedish Engineer Came a Machine that Provided the Foundation Upon Which the Modern Dairy Industry Has Been Erected



A cross section of the first centrifugal cream separator employing discs is shown at the left. This refinement of the original machine, invented in 1878 by Dr. De Laval of Sweden, was applied to separators in 1890. The application of the steam turbine as a means of driving a separator came into use at about the same time. A sketch of a separator with turbine attached is shown at the right.



ONE of the most remarkable characteristics of our era is the rapidity with which events have jammed into history's parking lot. Within the memory of men not yet of retirement age the United States has been involved in three wars and a reasonable facsimile of a fourth. The Spectacular developments in transportation and communication, airplanes, automobiles, radio, telephones, television, have all taken place during the brief span of three score years. In no other period of history have the affairs of men been subject to such political, social, and economic upheavals as those which have marked the first half of the twentieth century.

Not as spectacular as many other contemporary inventions yet, in the profoundness of its influence on human welfare, the equal of any, the centrifugal cream separator enters upon its seventy-first year. Few mechanical devices have contributed as much to the welfare of mankind as has the separator and, in the vast empire embraced by the dairy industry, few pieces of equipment can match it in stature. The separator and the pasteurizer along with the milk bottle and the butterfat tester are the foundations of modern dairying.

T. R. Pirtle, writing in 1926 declares, "Fifty to seventy-five years ago.... sanitary methods were unknown, science, art, or skill in connection with the handling of dairy products were unheard of. The dairy industry, as an industry did not exist. The dairy cow upon the farm was classed with the chickens. Whatever was produced in the way of milk, butter, and eggs beyond the requirement of the home table was traded at the store for groceries and supplies that the farm itself would not produce."

"Settling" was the common method of securing cream until the advent of the separator. Fairly large flat pans, generally called skimming pans, were used for this purpose. Probably most dairymen can remember the phalanx of such pans that adorned the shelves of every farm pantry.

Shortly before the invention of the separator a device based on this settling technique called the Cooley deep-setting system was in fairly wide use. This arrangement consisted of a large box-like tank that was capable of holding water. The milk was placed in elongated cans called shotgun cans which were immersed in cold water held in the tank. The tank was equipped with an elevator system for raising and lowering the cans. The cream usually rose in twenty-four hours and could be drawn off. The device worked fairly well but did not give a complete separation. If it were in use today, butter fat worth more than a hundred million dollars would be lost during the course of a year.

It was against this background of little technical knowledge, poor equipment, and primitive methods that Dr. Carl Gustaf Patrik De Laval invented the continuous centrifugal cream separator in 1878.

De Laval, a native of Sweden, was altogether a remarkable man. He flushed ideas out of his restless mind with the constancy and skill of a bird dog in good cover. In addition to the separator he invented the lactorite for testing the percentage of butterfat in milk, the centrifugal churn, and the centrifugal emulsifier. He also took out a patent on a mechanical cow milker in 1894. Other inventions that fall to his credit are a steam turbine which still bears his name, and numerous devices relating to ships, steam boilers, and magnetic ore separation.

By 1885 two important variations of the original machine had evolved. Two types of hand separators were introduced: one with a vertical and the other with a horizontal bowl. The hand separator, which made possible the separation of cream on the farm, was probably responsible more than any other single factor for the rapid spread and development of the dairy industry. The second addition to the separator's evolution during this year was the application of a steam turbine as a source of driving power. Most creameries had steam available and the turbine provided a satisfactory method of driving.

This period in the eighties was a period of awakening for the dairy industry. The principles of pasteurization were being applied to milk. The Federal Government created the Dairy Division of the Bureau of animal Industry. Unsweetened condensed milk was successfully manufactured at Highland, Illinois. Hoard's

(Please turn to Page 55)

Separators and Clarifiers Are Built For Rugged Duty But They'll Last Longer and Give Better Service If You - -

TREAT THEM WITH RESPECT

By **RALPH L. YOUNG**
The Sharples Corporation

UNTIL the invention of the first crude centrifugal cream separator about seventy years ago, cream was obtained by setting milk in a vessel of some kind for a sufficient length of time to permit the butterfat to rise to the top. This rising of the fat, or perhaps we should say settling of the serum, of course, was made possible by the force of gravity, the serum being heavier than the fat. After several hours of standing, a reasonably complete separation would occur and the cream consisting of fat and some serum was either skimmed from the top of the vessel or else the more-or-less fat free serum was drawn from the bottom.

There was, of course, a great loss of butterfat by this method due partly to the fact that there was no definite line of demarcation between the layers of cream and skim milk, but principally because it was impossible to allow the milk to set for a long enough period to permit the smallest fat globules to rise to the surface. Setting the milk in a shallow vessel rather than a deep one was found to reduce loss of butterfat, because the rising fat would need to travel through only a comparatively thin layer of serum before reaching the top.

All that we do in a modern cream separator is apply these old principles of gravity skimming while substituting centrifugal force for gravity. The effective force developed in a large cream separator bowl is roughly 7000 times that of gravity. The action of centrifugal force is to throw heavier bodies or heavier liquids outward from the center of rotation. Our problem might, therefore, appear merely to be the building of a bowl which can be rotated at a speed required to develop sufficient centrifugal force to separate the fat from the serum and to provide means for feeding milk into the bowl and for discharging the cream and skim milk.

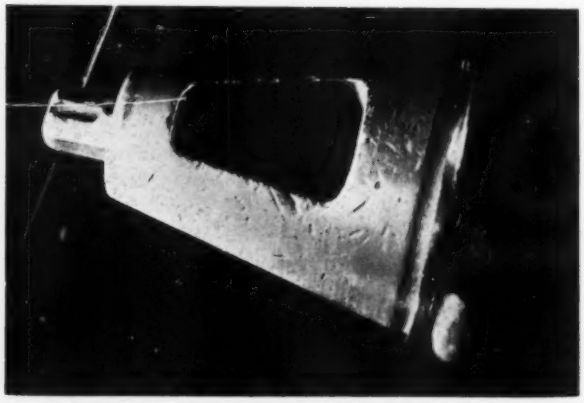
Shallow Pan Principle

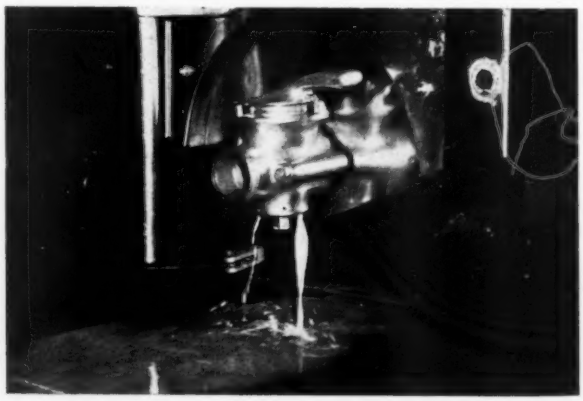
We would find, however, that such a crude bowl to be operated at the high throughput rates required in the modern milk plant would have to be tremendously large or else operate at terrifically high speeds in order to separate at the efficiency to which we have become accustomed. Materials of sufficient strength just aren't available to build and drive such a bowl and so we apply another lesson which we have learned from our past experience with the gravity skimming of milk—the shallow pan principle.

We place in our bowl say 120 or 130 discs spaced apart approximately .020 of an inch and slanted at a 35° angle. In this way, we have in effect 120 to 130 individual separating spaces in the bowl and, instead of moving several inches to get itself out of the milk serum, a butterfat globule need move only a few thousandths of an inch. In other words, between each disc there are two separate layers of liquid; one which we refer to as cream and the other as skim milk. The cream layer is constantly moving toward the center of the bowl while the skim milk moves toward the outer rim of the bowl. The cream is finally discharged from an outlet in the center of the bowl top, which central position corresponds to the top of our setting pan. The skim milk, in order to escape from the bowl, must pass around the outer edge of the solid top disc or dividing cone, which outer position corresponds to the bottom of our setting pan, and then inward to its outlet near the center of the bowl. Any solid material in the milk is retained in the sediment space against the outer wall of the bowl.

The only further problem which we have is that of controlling density or butterfat content of the cream. This is done by discharging the cream through a valve which can be opened or closed to let more or less cream escape. When the valve is fully open the butterfat content of the cream will be low, possibly around 15 to 18%. When it is nearly closed cream testing above 80% butterfat may be obtained. Except for extremely high butterfat concentrations, there is no appreciable difference in the amount of fat which remains in the skim milk regardless of whether light or heavy cream is being produced.

Most of the things we have said about separators apply to the centrifugal clarifier as well. We could draw the same comparison with a *settling* tank and a clarifier as we have with a *setting* vessel and a separator. Obviously, the material which we wish to remove from milk by





This valve, badly scored because of careless handling, illustrates what Mr. Young means when he says "a separator and clarifier should present no greater maintenance problem than any other piece of equipment that is found in the dairy plant." You can't hit 'em with a hammer and expect that they will be at their best. Careless handling is a major maintenance problem.

SHARPLES DESIGNS
WITH AN EYE TO THE FUTURE

Therefore, be sure the next separator or clarifier you buy has all these Sharples features:

All parts in contact with the product of stainless steel; all other external parts of suitable corrosion resistant materials.

A durable, one-piece, polished corrosion resistant frame built to stand abuse if necessary.

A rugged, non-distorting cover, positively located and attached to frame to properly centralize discharge parts and minimize seal wear. For larger sizes, a cover which stays on the machine, off the floor.

Inlet pipe supported to prevent vertical or side movement which might cause misalignment of inlet parts and excessive seal wear.

A fully enclosed motor that in an emergency is completely removable from the separator or clarifier as a single unit and that is protected by a starter designed for separator service.

On larger units, a fast-acting bowl crane which centers exactly over the spindle, automatically prevents lowering of the bowl by gravity and thus helps avoid damage to the bowl or other parts; one which can be used regardless of low piping, steps or other obstructions.

Oversize gears, designed to carry heavy starting load.

Bowl balanced on the outside for greater permanence; easier cleaning.

A spindle held rigidly at the bottom, as is necessary, but so proportioned as to cause a minimum of wear on lower bearing and gears in the event of bowl unbalance due to uneven loading or other causes.

. . . and, of course, a truly direct geared drive which has no clutch to slip and cause loss of efficiency.

The SHARPLES CORPORATION — *Presur-Seald* SEPARATORS and CLARIFIERS

Dairy Equipment Division

EXECUTIVE OFFICES AND FACTORY, 2300 WESTMORELAND ST., PHILADELPHIA 40, PA.

New York 17, N. Y.	Chicago 4, Ill.	Boston 10, Mass.	San Francisco 5, Cal.	Cleveland 15, Ohio
501 Fifth Avenue	80 Jackson Boulevard	230 Congress Street	686 Howard Street	453 Hippodrome Annex Bldg.

means of clarification is principally that which is objectionable because it settles to the bottom of the milk bottle.

In this connection, I am reminded of a story told me some years ago by a distinguished milk plant authority. He said that one of his first recollections of milk inspection methods concerned that of an inspector who had devised a pail with a glass strip down one side. The inspector would fill this pail with milk and let it stand for a couple of hours. If at the expiration of that time, more than one inch of sediment showed through the glass strip at the bottom of the pail, the supplier would be ordered to clean up or else have his product condemned.

Fortunately, we do not have such conditions to contend with today and in any event the work of a clarifier in removing foreign impurities from milk is relatively simple as compared with that of the separator. However, the problem of removing cells from milk which is to be homogenized demands that the clarifier operate with a much higher degree of efficiency than was previously necessary and for this reason anything that is said about maintaining the efficiency of the separator applies equally today in the case of the clarifier.

Clean the Bowl Before —

A clarifier will remove a greater percentage of cells from hot milk than from cold milk but I have heard of only a very few plants which have had sediment trouble with homogenized milk following cold milk clarification. I think that the principal thing we must do in order to assure efficient clarification is to be certain that the clarifier bowl is cleaned *before* it becomes filled with sediment. I can give you no formula as to the time a clarifier bowl may safely be operated without cleaning as this varies with the size of the machine, the quality of milk, the season of the year, the temperature at which milk is clarified and the throughput rate.

You can clarify hot milk without cleaning the bowl for only about one-half as long as when running cold milk. Strange to say, for a given size of machine, you may need to clean the bowl more frequently when running at reduced capacity than when running at full capacity. Both of these things are true because the efficiency of the clarifier is improved when the temperature of the milk is raised and when the throughput rate is lowered. This applies, however, only to the removal of milk solids, including cells, and is not to be considered in connection with the removal of foreign material.

Your separator or clarifier bowl is a carefully coordinated mechanism. In order to do the job it is built to do it must be maintained in practically its original state of perfection and operated under certain very definite conditions as to speed of rotation, temperature and condition of product, throughput rate, etc. If, for example, a number of discs become bent or distorted they should be replaced with new ones; otherwise efficiency will be lowered because of the fact you will have some "pans" which are too deep and others which are too shallow.

IS IT LEGAL?

The Ada, Oklahoma, City milk ordinance was amended recently to provide that all milk and milk products sold within the City must be from milk produced within the limits of "Routine inspection" of the City.

The Pine Bluff, Arkansas, ordinance will face a test case because it prohibits producers and manufacturers of pasteurized milk outside the local county from selling milk within the city. An out of the city dairy will probably bring suit to challenge the present ordinance.

However, it is often possible to "baby" a separator by reducing the throughput rate or stepping up temperature a bit to compensate for mechanical inefficiencies or product deficiencies. When we reduce throughput rate we expose the product to the action of centrifugal force for a longer period and within certain limits obtain better separation or clarification.

Need For Careful Maintenance

Except for its high speed and the fact that the rotating member or bowl must be completely disassembled for cleaning at least once each day, a separator or clarifier should present no greater maintenance problem than any other piece of equipment that is to be found in a milk plant. High speed operation, that is 6000 r.p.m., necessitates a degree of mechanical perfection unnecessary in low speed equipment and this, of course, is reflected in a greater need for careful maintenance. Moreover, constant disassembling and reassembling of the bowl for cleaning provide opportunities for damaging or improperly assembling the parts so that the bowl may become unbalanced, although modern separator and clarifier bowls are much less susceptible to unbalancing than those of a few years ago. Immediate attention should be given to any indication of roughness in operation. This is almost always a forewarning of trouble which can be avoided in most cases by doing something about it at once.

The bowl of a separator or clarifier is balanced as a complete unit. The individual parts are not balanced. Consequently, if the bowl is not assembled in exactly the same way each time it is used it may be unbalanced and run roughly. Most bowl parts are keyed in such a way that they cannot be improperly assembled. The exception to this is the coupling ring which clamps together the bowl top and the bowl shell. This ring and the bowl top are marked to show when the ring is turned to the proper balancing position and the threads should be greased each day to assure easiest possible assembly. Sometimes it is difficult to bring the coupling ring quite up to these marks and this fact alone may result in rough running. Sooner or later the operator discovers that by removing one or more discs from the bowl, he can secure easier assembly. This will work satisfactorily in some cases and not in others because if the discs are not under sufficient pressure, vibration and rough running will result.

Even though discs are not removed from a bowl to secure easier assembly, they will in time wear slightly thinner so that the stack becomes a bit loose and an additional disc must be added. Extra discs are supplied with each new separator and clarifier for this reason.

Cranes Are For Protection

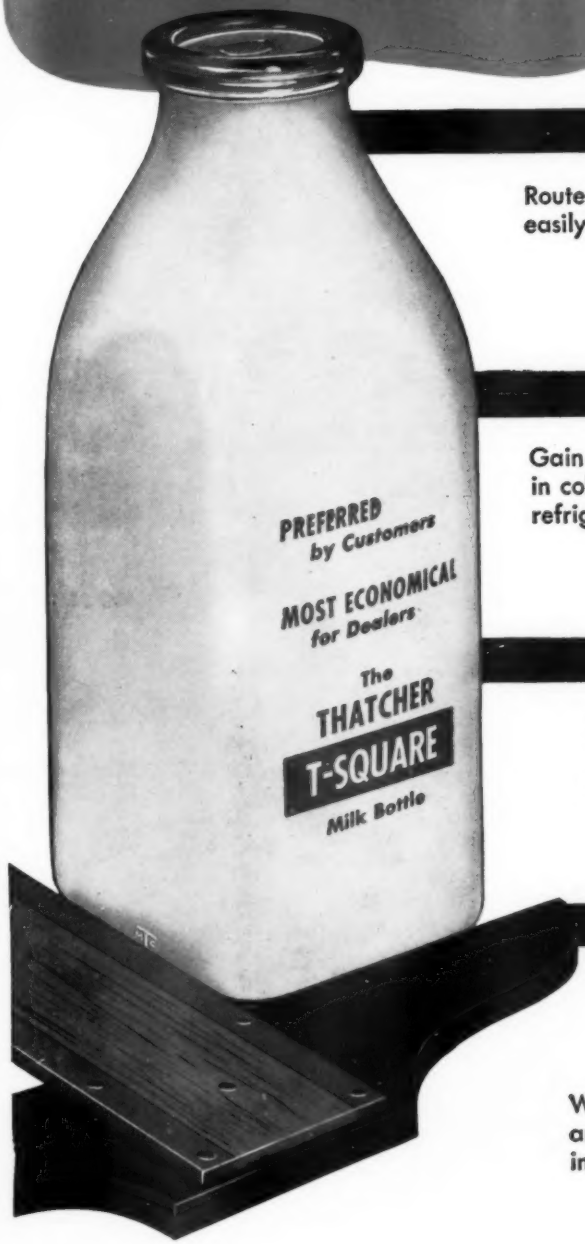
Large separators and clarifiers of modern design are equipped with bowl cranes which facilitate handling of the heavy bowl parts when disassembling and reassembling. These cranes are provided primarily as a means of protecting the separator or clarifier mechanisms rather than as a convenience feature. The weight of the bowl is carried by a thrust bearing at the lower end of the driving spindle. If heavy bowl parts are dropped into place during assembly the bearing may become damaged. Moreover, if the bowl shell is carelessly placed on the spindle the threads at the top of the spindle may become damaged or, worse still, the inside of the bowl nave which fits over the spindle may become gouged.

In this latter case, the bowl will rest on the spindle in a slightly oblique position and likely run roughly. Rubber seals at the top of the machine will be subjected to excessive wear. I cannot too strongly recommend use of the bowl crane which is supplied to help avoid such damage to separators and clarifiers.

I cannot think of additional factors in separator and clarifier operation which require any definite attention other than that which is ordinarily given a motor, a pump, a compressor or any other commonly used dairy apparatus.

Thatcher T-SQUARES*

THE MOST IMPORTANT FACTOR IN MILK DISTRIBUTION



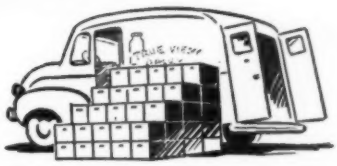
The number of quarts delivered per route each day is the most important item affecting milk delivery costs. The larger the route load, the lower the unit cost; and lower unit cost means more profit for your milk plant.

Thatcher T-Square returnable glass milk bottles will easily help you increase your daily route load by one-third . . . and this will reduce costs by as much as 1c per quart.

Ask the milk dealers who have Thatcher T-Squares and they will tell you that converting to these modern milk bottles is the most important factor in reducing selling and delivery costs, because:

More Milk

Route loads increased easily by 40%



More Space

Gain 50% more space in cold rooms and refrigerators

More Trips

Trippage increased; result: the lowest cost container for milk

More Customers

Surveys show that housewives prefer T-Squares.

Write us to have the Thatcher Representative in your area personally give you full information about installing Thatcher T-Squares in your milk plant.

THATCHER GLASS
Manufacturing Company, Inc.
Elmira, N. Y.

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SEPARATING CREAM FROM WHOLE MILK

By GORDON A. HOURAN

CREAM IS PRODUCED from whole milk by separating the butterfat, in the form of fat globules, from the whole milk. Since fat globules have a specific gravity lower than that of skim milk, the separation can be made continuously by centrifugal force. Specific gravity, incidentally, varies with the temperature of the milk. Fat globules increase in size when heat is applied, making the difference in specific gravity correspondingly greater.

Other factors that affect the speed and completeness of separation are the size of the fat globules and the viscosity of the milk. In normal milk there is a great variation in the size of fat globules, which range from large to very small. The large globules are light enough to separate from the milk without the aid of centrifugal force. The smaller globules, however, are more difficult to separate, and it takes a force thousands of times that of gravity to separate the fat globules from the milk completely and practically instantaneously.

The higher the viscosity of milk, the slower milk flows, and the slower the fat globules will flow through the milk. Heat reduces viscosity and permits the fat globules to flow faster.

The degree of acidity of the milk and its age, likewise affect the speed and completeness of separation. These are relatively unimportant, however, and play little part in the design of the separator bowl.

As in the case of clarification, proper separation depends not so much on the amount of centrifugal force developed as the manner in which the force is applied in the separator bowl. The problem confronting engineers, particularly with a disc type bowl, was to incorporate all of the design features which would enable cream to be separated most completely and yet at the same time provide for centrifugal force sufficiently moderate to minimize wear on bearings and other running parts. The purpose of discs in the separator bowl is to divide the milk into thin layers so that centrifugal force can most easily separate the fat globules from the milk. The discs are spaced in such a way that the fat globules have only a short distance to travel before being separated from the milk.

It is essential that the milk from which the cream is being separated be exposed to centrifugal force as long as possible. In the bowl of a modern separator, milk, in its movement between discs, travels a maximum distance before it is free of the discs. This gives the fat globules relatively long exposure to the separating force. The greater the distance the skim milk travels, and the longer the time of exposure to centrifugal force, the better the degree of separation.

Gordon A. Houran, the author of this article, has been involved in one way or another with separators and clarifiers since he graduated from the University of Massachusetts in 1933. At the present time Mr. Houran holds the position of Sales Manager of Factory Machines in the De Laval Separator Company. His long experience with this type of equipment has been crystalized in these articles on the theory of separation and clarification. The stories are excerpts from a comprehensive manual on De Laval separators and clarifiers which Mr. Houran has recently completed for use by De Laval representatives.

Let us follow the course of whole milk as it travels from the separator bowl to be separated into cream and skim milk. Naturally, I am more familiar with our own equipment and consequently the diagrams used are of De Laval Separator Bowls. However, the principles are fundamental in all disc type airtight separator bowls.

A. Whole milk is pumped through the hollow spindle of the Separator "A" to the bottom center of the bowl. A positive displacement pump, auxiliary to the separator, is used.

B. The milk is directed into the distribution tubes by the distributing nut directly above "A". One of these distribution tubes is shown in cross section at "B".

C. The distribution tubes "B" direct the milk to the distribution holes in the discs "C". As soon as the whole milk enters the spaces between the discs, separation of the fat globules from the milk begins.

D. As the milk enters the space between the discs "D", most of the fat globules (shown in yellow in Figure 1) move inward and upward toward the center of the bowl. The mixture of fat and milk that makes up the cream gathers around the central shaft of the bowl. It is pushed up, in turn, by the cream following, until it meets top disc "E" and thence leaves the bowl through the opening in the top.

E. If the cream is restricted in its passage from the bowl at "E" and is kept in the bowl for a longer time, centrifugal force removes more of the skim milk from the cream and a higher testing cream results. Correspondingly, if the discharge of the cream from the center of the bowl is not restricted, the flow of cream across the discs and out of the bowl is more rapid and more skim milk flows out with the cream, producing a lower butterfat cream. Restriction of the cream is accomplished by mechanically adjusting the back pressure on the cream. Thus the cream can be varied from a high to a low percentage of fat content by limiting the time that the cream is subjected to the relatively low centrifugal force in the "cream zone" nearest the center of the bowl. F. At the distributor holes in the discs "C" the skim milk (except for the relatively little that stays with the bulk of the fat globules to form the cream) separates from the cream and passes outward and downward in the space between discs "F". This skim milk carries some small fat globules with it. These globules are gradually left behind by the skim milk and move upward and in toward the center of the bowl, traveling across the upper side of the discs. This thin cream stream continues to move upward and in until it reaches the main body of cream.

The skim milk, before escaping from the space between the discs, must pass through the zone of maximum centrifugal force, at the outside edge of the discs. There the smaller fat globules are separated from the skim milk. G. As the skim milk escapes from between the discs, it passes to the space "G" between the discs and inside of the bowl shell. In "G" the direction of the flow of the skim milk changes and the skim milk flows upward, depositing on the inside of the bowl shell much of the sediment that it has carried along.

H. The skim milk, now free of sediment and cream, flows up "G" and through the outlet "H". The skim milk flows over the top disc. (It will be re-

(Please turn to Page 53)

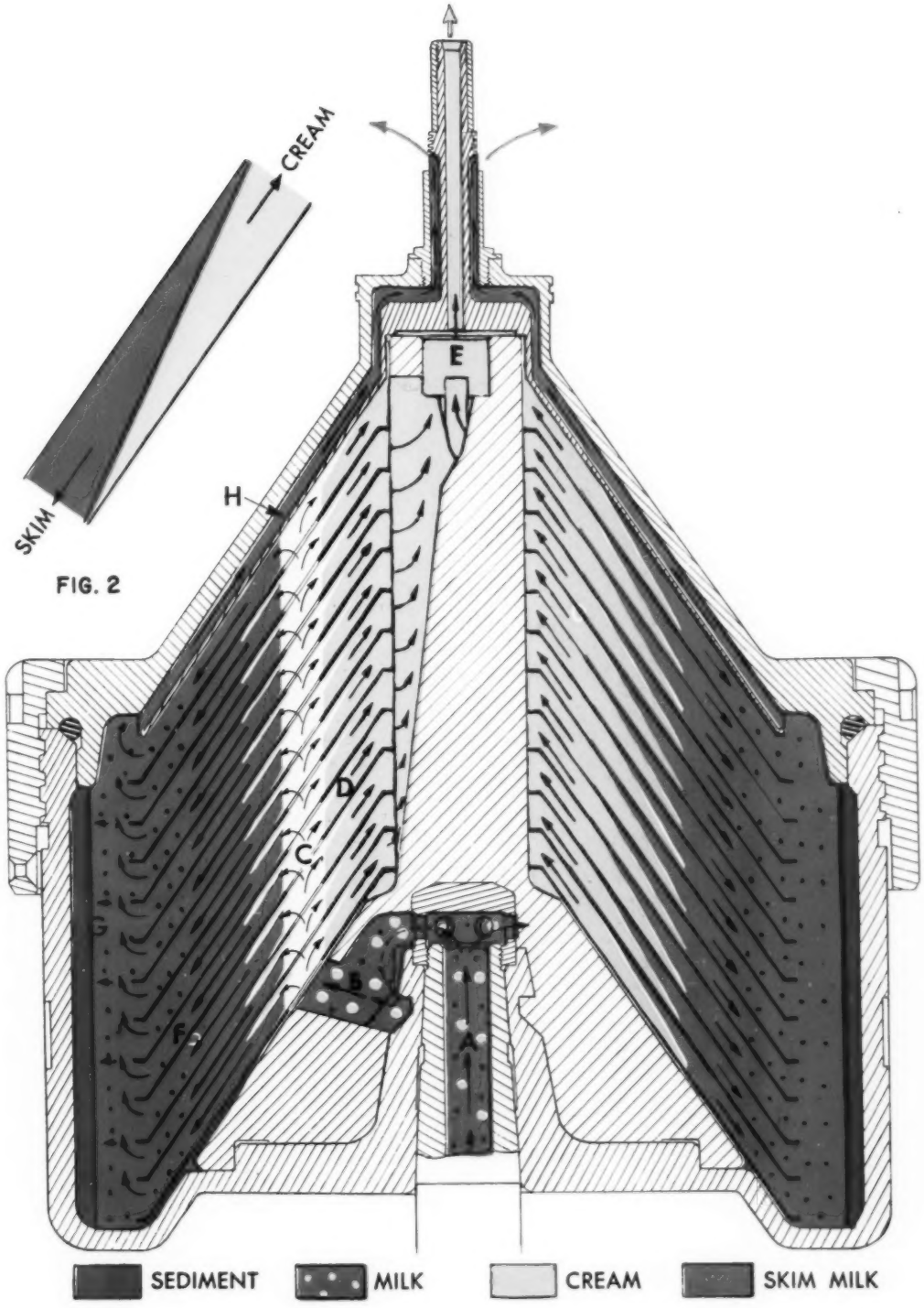


FIG. 2

FIG. 1

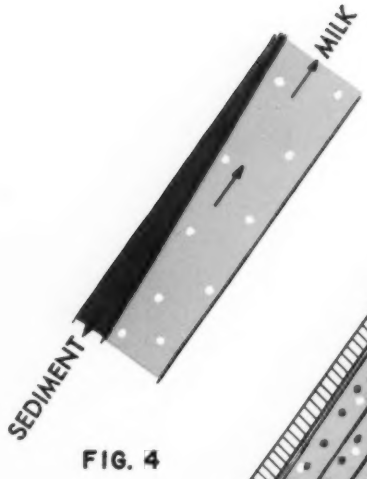


FIG. 4

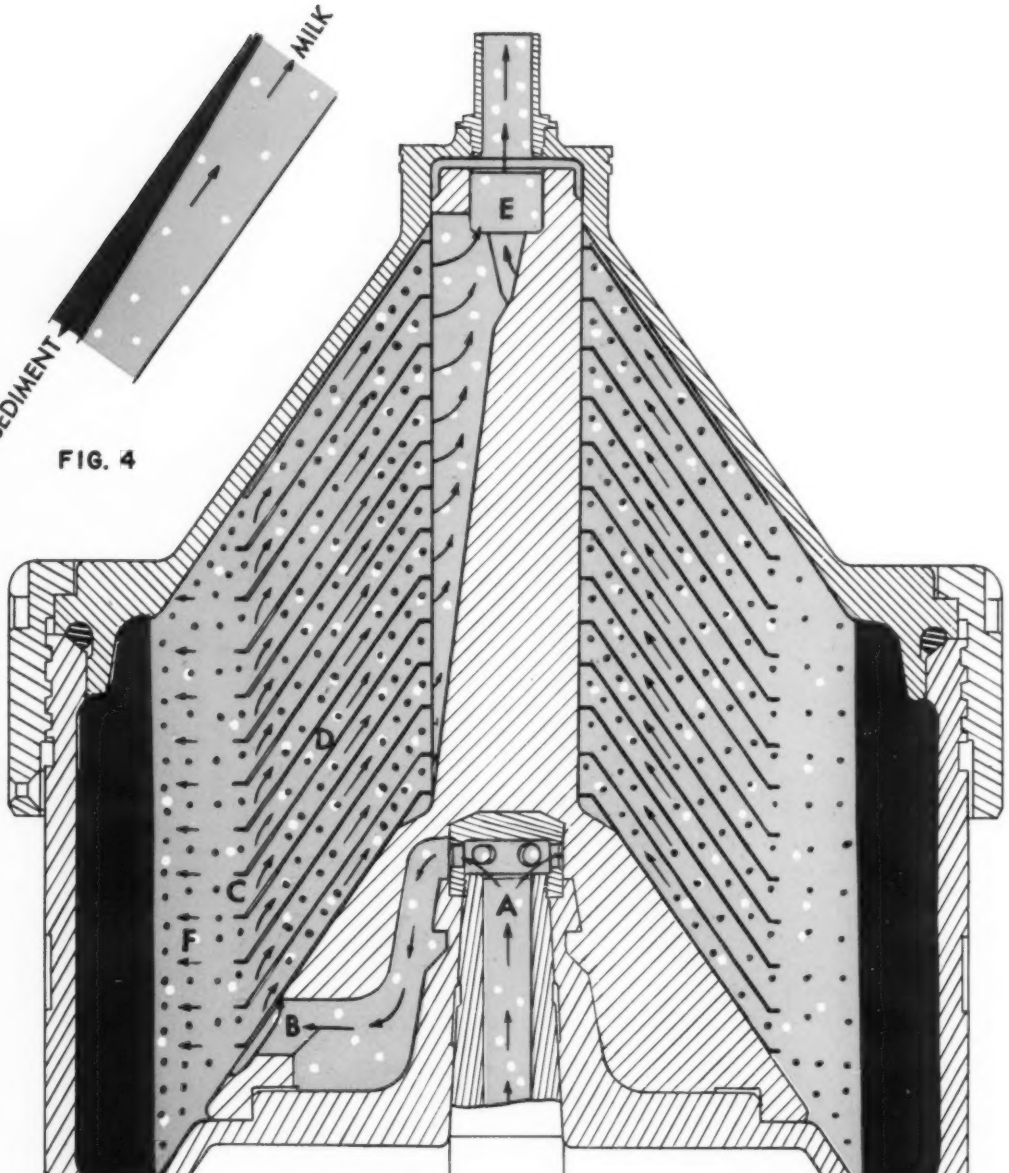


FIG. 3

WHAT *is* MILK CLARIFICATION?

By GORDON HOURAN

CLARIFICATION OF MILK may be defined as the continuous removal of insoluble sediment foreign to milk, without change in the properties of the milk. Such sediment may consist of blood cells, tissue cells or any other extraneous matter in the milk as drawn from the cow, or it may consist of dirt particles introduced into the milk prior to clarification. Sediment, in order to be removed by the clarifier, must have a slightly greater specific gravity than the milk; that is, the sediment particle must be heavier than an equal volume of milk.

Effective clarification depends less on the amount of centrifugal force developed than on the manner in which this force is applied within the bowl. Many years of experience have shown that a moderate amount of centrifugal force, scientifically applied in disc type bowls, is capable of removing the insoluble sediment from milk more efficiently than any other means. By increasing the bowl diameter, or increasing the speed of rotation of the bowl, a far higher centrifugal force could be developed, but this is neither desirable or necessary. In designing clarifier bowl, several factors are involved:

Specific Gravity of Sediment

Milk sediment varies greatly in weight, size and form. A well designed clarifier bowl will remove all sediment, whether it is a grain of sand much heavier than milk, or a blood cell only slightly heavier. It will effect the removal without simultaneously removing an appreciable quantity of valuable constituents of the milk.

Viscosity is a measure of how fast milk can flow. In De Laval clarifier bowls, viscosity of milk is relatively unimportant. The proper amount of centrifugal force scientifically applied will remove sediment even when the viscosity is relatively high as in the case of cold milk. (Milk, like molasses, flows faster when warm, but to a much lesser degree, of course.)

Removing Particles from Milk

This is the most important consideration in designing a clarifier bowl. Almost 75 years ago it was learned that by using discs of proper size, shape and number, the distance a solid particle must travel before it is thrown out of the milk can be closely controlled. The closer the discs are together, the shorter the distance a sediment particle must travel before it hits the under-side of a disc. In other words, the discs divide the milk into thin layers so that centrifugal force can act on the milk most efficiently. That is why the space between discs is kept as shallow as possible consistent with allowing the milk to flow freely and preventing sediment which has been thrown out of the milk stream from remixing with the milk.

What Takes Place in a Clarifier Bowl

Let us now follow the path of the milk through the bowl and see how clarification takes place. (Figure 3.)

1. Unclarified milk is fed into the center of the bowl at the bottom through hollow spindle "A" by a positive displacement pump which is separate from the clarifier.

WANNA MAKE A BUCK?

Here's your chance! The *American Milk Review* will pay $1.00 for any story, anecdote, joke or incident which we publish about dairymen and their work. Clean 'em up, write 'em down and send 'em in.

Address "What's So Funny" Editor, *American Milk Review*, 92 Warren St., New York 7, N. Y.

2. As the milk enters the bowl, the distributing nut directly above "A" directs the milk into the distribution tubes, one of which is shown in cross-section "B".

3. The distribution tubes "B" direct the milk to the distribution holes in the discs "C". These distribution holes provide passage for the milk to enter the space between the discs.

4. As the first milk enters the bowl, the space between the outside edge of the discs and the inner wall of the bowl shell (Space "F") fills with milk. This milk is held by centrifugal force in this space in a relatively quiet state during the time that the balance of the milk is being clarified, except as it may be displaced gradually by the wall of sediment that builds up around the inner wall of the bowl shell. This wall of relatively quiet milk protects the milk being clarified from contact with sediment already deposited around the wall of the bowl.

5. As the milk continues to be pumped into the bowl it spreads out from the distribution holes in the discs into the thin layers between the discs. The milk moves upward between the discs ("D") toward the center of the bowl, flowing across the upper side of each disc. As the distribution holes are located near the outside edge of the discs, the milk is subjected to maximum centrifugal force (centrifugal force gets greater as the distance from the center of the bowl increases.)

Centrifugal force acts on the heavier-than-milk sediment in the thin layers of milk between the discs and throws them out of the milk. On their way to the inner wall of the bowl against which they build up, they travel on the underside of each disc. When the sediment reaches the outside edge of a disc it moves horizontally through the wall of quiet milk "F" and builds up as a slime wall against the inner wall of the bowl. This slime wall, shown in red in the illustration, is actually light gray in color. It remains against the wall until it is removed when the bowl is stopped for cleaning.

6. The milk between the discs continues to flow up and in toward the center of the bowl, leaving the sediment particles behind. When the milk reaches the distributing shaft (which is the disc carrier) it flows vertically to outlet "E" at the top center of the bowl. From "E" the milk, completely clarified, passes from the bowl into the outlet connection of the clarifier.

7. An enlarged cross-section of the space between the discs shown in Figure 4. The sediment particles form one stream, moving down and out. Passing under this sediment, and moving in the opposite direction, up and in, is the milk stream.

Cream is not separated from milk in a clarifier bowl; the milk moves too rapidly through the zone in which separation would take place. Moreover, the fat globules move in the same direction as the whole milk, and so have no opportunity to separate from the milk.

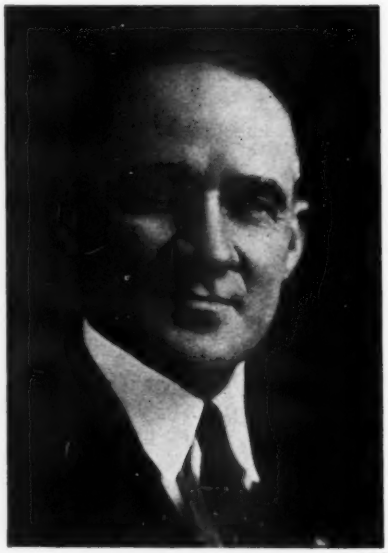
NOTE: Compare the flow of whole milk through a clarifier with the divided flow of cream and skim milk through a separator (Figure 1).

A TRIP with the EDITOR to

GUILFORD DAIRY COOPERATIVE

THIS HAS BEEN a winter of contradictions. While operation Haylift was bringing food to snow bound cattle on the western ranges the east was enjoying the mildest February since 1890. As a matter of record we saw a man planting his garden in Stamford, Connecticut on February 23. However, as Mark Twain used to say, "If you don't like New England weather wait ten minutes." On February 28 the bargain counter spring gave way to a real touch of winter and before the day was over there were thirty inches of new snow on our front lawn. Right now a stiff northwest gale is filling in the paths we so laboriously shoveled early this morning. Under the circumstances just about the best thing to do is to adjourn to Greensboro, North Carolina and take a look at the Guilford Dairy Cooperative Association in the heart of the Tarheel tobacco country.

The Guilford Dairy Co-op folks have just built themselves a new plant that comes pretty close to being a million dollar proposition. Yellow brick and brown tile plus a liberal use of glass are the materials that predominate in the building. Situated at the apex of a triangle formed by a fork in the main highway from Winston-Salem to Greensboro the plant is surrounded by luxurious green grass and a splended paved parking area. The plant gives one the impression of standing athwart the high road. It is an impressive sight and does exactly what its builders wanted it to do. It says "QUALITY" and it says it in a way that one remembers for more than six minutes.



MOSE KISER

Guilford Dairy Co-operative's new plant at Greensboro, North Carolina is a monument to Mr. Kiser, general manager of the Co-op, and to the new dairy industry in the Tarheel State. In the striking night photograph below the modern character of the building can be seen.

We made our tour of the plant with Mr. Mose Kiser, General Manager of the Co-op. accompanied by Mr. and Mrs. O. R. Thompson of Medford, Wisconsin. Mr. Thompson is manager of the Rib-Lake Dairy Cooperative.

In its overall aspect the Guilford plant is about as complete a unit as we have seen in some time. On the second floor are the general offices routemen's room, auditorium with a large glass window that looks out on the bottling room, beautiful model kitchen, executive offices, and a supply storage to end all supply storages. On the ground floor is the

You "gotta" figure all the angles

. . . and no matter how you look at it, Diversol . . . the complete bactericide . . . gives you greater control over bacteria . . . greater protection of product purity! Compare your present bactericide with the 10 outstanding features of Diversol! Figure all the angles and you, too, will be convinced! Remember: Diversol penetrates completely . . . dissolves quickly, thoroughly . . . is easy to use . . . *non-corrosive* . . . rinses freely . . . softens water . . . is stable . . . uniform . . . economical . . . approved! Order Diversol from your D-Man today or write:

DIVERSOL

CALL YOUR DIVERSEY D-MAN

He's Ready, Willing and Better Able to Serve You in Solving Any and All Sanitation and Insect Control Problems! Let Him Show You the Wonders of the Enoz System of Modern Insect Control!

THE DIVERSEY CORPORATION

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receiving room, holding room, processing room, refrigerated area, garage and loading platform, repair shop, paint shop, unloading platform, bottle washing room, and finally an ice cream bar and soda fountain large enough to accommodate a substantial part of the 8th Army.

Carefully Integrated Operation

The general scheme of plant operation is a carefully integrated system that moves through several channels. Milk comes into the receiving room, is weighed in one of two weigh pans, and then run through the clarifiers. From the clarifiers the milk can go either direct to the processing room or into the holding tanks. The processing room is equipped to pasteurize, separate, condense, make ice cream, and cottage cheese. The bottling room is surrounded by the processing room, the holding tank room, and the refrigerator room. This bottling room is done in dull yellow tile with a red dairy tile floor. It is one of the show places in a plant where one has a hard job finding anything that is not a show place.

Empty bottles are unloaded from the trucks, run through the washers and brought into the bottling room in the accepted manner. The conveyors make a right angle turn in the bottling room and carry the packaged milk into the refrigerator. Here again plenty of space is evident. Indeed one of the outstanding characteristics of this plant is the provision for expansion. The place was built, not for today, which it serves easily, but for the day after tomorrow.

Loading is done in the garage. This was another feature of the plant that we thought was unique and well worth emphasizing. The general flow of milk is across the plant as we have tried to indicate with a branch line coming in from the unloading platform. The flow ends at the loading platform which takes up most of one side of the garage. There are six loading stations, each fed by a branch from the main conveyor line out of the cold room. At each loading station there is an ice bunker built into the wall so that ice is readily available for icing the load. All that the routeman has to do in the morning is to take his truck out of the garage line-up and back it into position at his appointed loading spot. His load comes out on the conveyor and can be shunted on to the branch that serves his position. Then it is a straight haul out of the plant on to the driveway.

They Wash Behind the Tires

The truck garage is a huge affair capable of housing 84 trucks. One one side of the garage exit is the repair shop, completely equipped to handle the repair jobs that a big fleet of trucks can demand. On the other side of the exit are two consecutive rooms, one devoted to washing and the other to painting the trucks. According to Mr. Kiser's schedule the trucks get a washing every other day and a paint job every 12 months. The colors are a bright red and yellow combination that work into a striking effect.

The rustic lodge shown above is an employee recreation center owned by the Guilford Dairy Co-operative. Employees, patrons, and customers enjoy its facilities. Picture on the right shows high ceilinged immaculate bottling room. Large observation windows allow visitors a clear view of the bottling operation.

The unloading arrangement is another well planned operation. It is not an unusual procedure but follows proven rules of good dairy plant management. One feature we did notice, it was a new one to us, was the use of a large magnifying glass on the conveyor line where the bottles come out of the washer. This glass was about ten inches in diameter and made any foreign matter that might have remained in the bottle after washing stand out like the Washington monument.

The last two features of the ground floor layout, both on a par with the bottling room as sparkling examples of what a modern milk plant can be, were the ice cream bar and the foyer at the entrance to the plant. Two large glass doors mark the entrance. They are truly elegant portals. The visitor passes through these doors and finds himself in a good sized hallway from which stairs lead to the offices and auditorium on the second floor. A second door leads into the ice cream bar. We remarked on the size of this entryway, if we can designate as an aristocratic area by such a mundane term. Mr. Kiser explained the spaciousness by pointing out that one of the facets of the Co-op's public relations program calls for a widespread use of the auditorium by various groups in the community. When groups are arriving at the plant, by virtute of the large foyer, they can unload from their cars, come into the building, and have plenty of room in which to wait for the drivers of cars or other members of the group to join them.

Magnificent Ice Cream Bar

The ice cream bar, as intimated before, is built along Paul Bunyan lines. The decorative job is yellow in combination with a soft green which gives a light, springish effect. The booths and tables follow the general color scheme and the upholstering on the chairs is the same soft green that is used on the walls. The bar itself is possibly forty or fifty feet long. It serves a wide variety of milk shakes, sundaes, and ice cream. The Co-op does a land office business in packaged ice cream, most of which is sold in ½ gallon containers. The bar stays open until eleven in the evening and has come to be a sort of rendezvous for young folks in Greensboro. Friday evening, which is basketball

(Please Turn to Page 45)

Smith-Lee CELLOPHANE HOODS

MOISTURE-PROOF
TAMPER PROOF

. . . It's not magic, but it works like magic when you package your milk for profit with Smith-Lee Cellophane Hoods. They offer prospective customers twice-as-safe DOUBLE PROTECTION and a double reason to become your permanent customers.

CELLOPHANE HOODS SAVE MANUFACTURERS' PROFITS!

High-speed Smith-Lee Hooding Machines *make and apply* their own hoods in ONE operation at the rate of 25 to 80 bottles per minute. You SAVE ON COSTS all the way around! Cellophane stores by the roll in minimum space, enabling you to buy in quantity and save on discounts.

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10,000 BOTTLES

FREE Advertising-Merchandising Helps
NEWSPAPER MATS • RADIO SCRIPTS

Smith-Lee helps you sell more milk by supplying a complete extra profit selling plan plus newspaper advertising mats and radio scripts.

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Write Direct Today

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for Double Customer Satisfaction
at Lowest Cost per Bottle

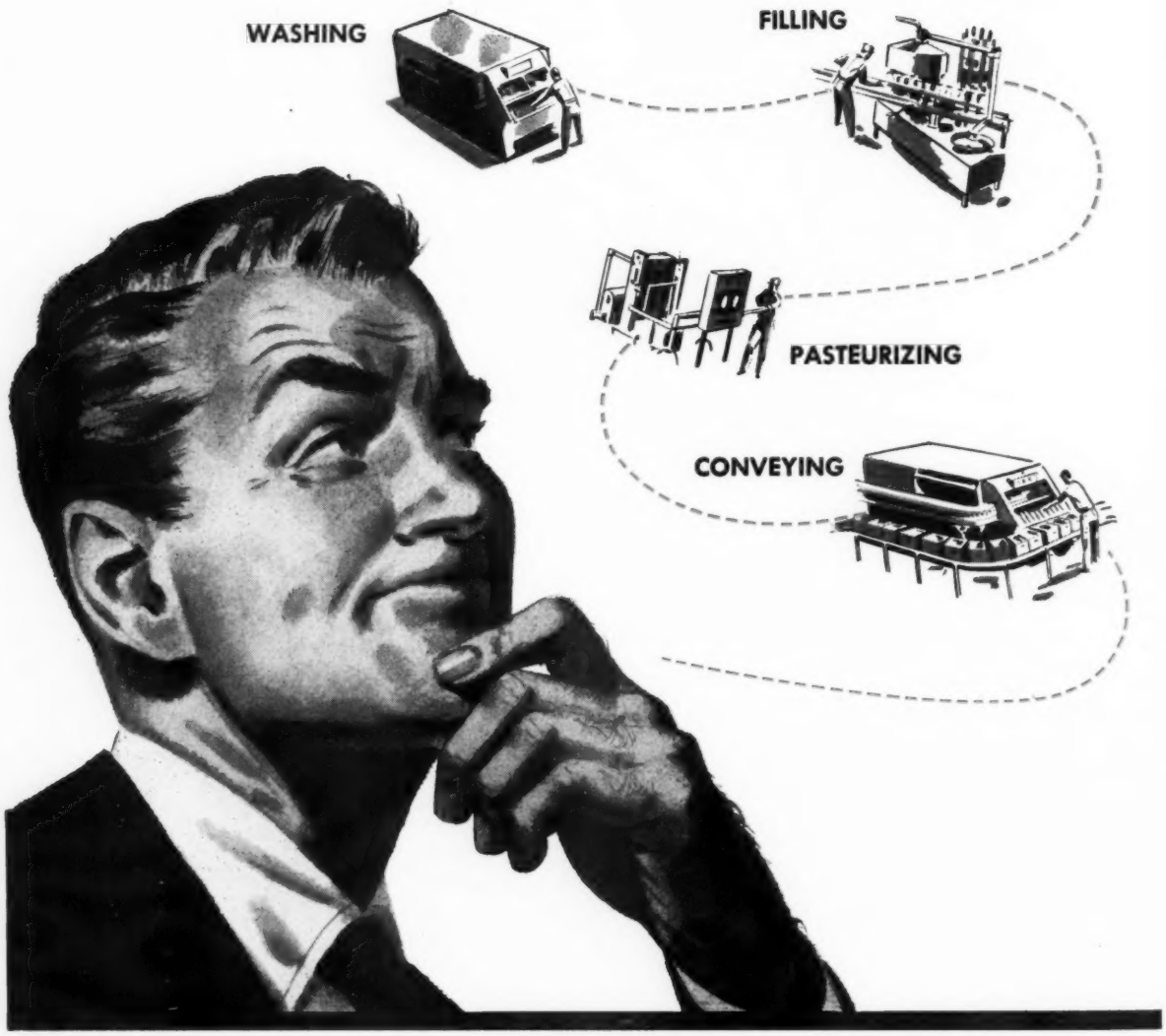
Smith-Lee HOODS

PACKAGE YOUR MILK FOR GREATER PROFITS

CAP HEADQUARTERS

SMITH-LEE CO., INC. ONEIDA, N. Y.

..How much do I pay



WHERE CAN I SAVE MONEY NOW? First of all, we dairy operators have to go after a shorter working day—get everything done, including all cleanup time, within eight hours. Well, to do that in my plant I need a larger filler and washer. I can fit mine into existing space if I use Shortime Pasteurization which will cut in half the room I now need for old-fashioned pasteurizing equipment. Then, too, if we use conveyors to do the heavy work, we can eliminate a lot of hand trucking, stacking—and get a more efficient layout of the whole production operation. I wonder . . ."

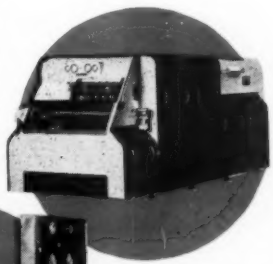
for milk in the bottle

can I afford to put up with old-fashioned, outgrown machines and methods?

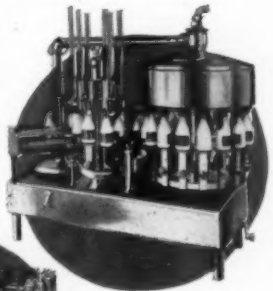
Thoughts like these are occupying all farsighted plant operators, these days. And there are some who are tempted to sit tight and make old equipment "do." Yet every drop of milk saved, every man-hour used at greatest efficiency can well bring immediate and appreciable reductions in the cost to you of milk—in the bottle, ready for delivery. That's why now, more than ever before, is the time to take advantage of every modern development applicable to your production problems.

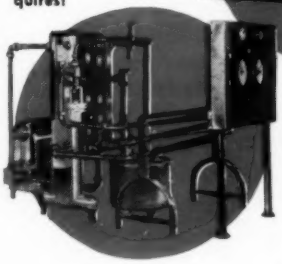
CHERRY-BURRELL EQUIPMENT YOU SHOULD KNOW ABOUT

The right washer... there's a Cherry-Burrell soaker-type washer for every size filler. High temperature soak, low caustic concentration. Saves washing powder, reduces bottle damage. Get the capacity your filler requires!

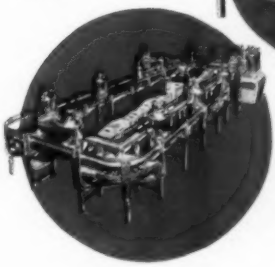


Gra-Vac Filling Cuts Losses . . . Gray-Vac Filler-Cappers refuse to fill broken bottles, fill accurately up to ⅛ of an inch of the cap seat—can't overfill—save those costly gallons that frequently go down the drain.





Superplate Shortime Pasteurizer . . . the most efficient, sanitary pasteurization equipment. Saves space, steam and water. Reduces waste of milk and man-hours. One man can handle pasteurizing and filling operations.



Hi-Flex Conveyors eliminate the wasteful practice of manually moving cases, cans and other heavy loads. Easy to set up, adaptable to all conveying needs. Quickly and easily modified.

Send for bulletins!

The book "Save Milk, Man-Hours and Money" fully illustrates the opportunities you have to lower your production costs. Send for your copy and ask for copy of the bulletins on other Cherry-Burrell equipment which interests you.

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- ☐ Bulletin on Gra-Vac Model K
- ☐ Bulletin on Hi-Flex
- ☐ Bulletin on Washer with ( ) Capacity

Name .....

Address .....

City..... Zone... State.....

W. P. LANDRETH

Portrait of a Dairyman

FOUR HUNDRED MILES west of Cape Hatteras' stormy hook the blue mystery of the Great Smokies marks the boundry line between Nortl. Carolina and Tennessee. Between these extremities of sea and mountain lie the tobacco and cotton, the dogwood and pine, the legendary past and the stirring present that are North Carolina.

The last quarter century has seen profound changes in the economy of North Carolina. Industrial development, particularly in textiles, furniture and tobacco, has boosted the State into the position of first industrial community of the South. Along with this evolution has come an increasing awareness of the dynamic role that dairying plays in a well rounded economic structure. Architects and builders of the new dairy industry are leaders of North Carolina business and agriculture. Not the least of these is W. P. Landreth.

Mr. Landreth is a dairyman of long standing. He was born and reared in Guilford County not far from the spot where the riflemen of General Nathanael Greene turned back the British at Guilford Courthouse. Like so many of his contemporaries he entered the dairy industry by way of his father's farm and milk route. In 1923 he became associated with the Forsythe Dairy Company which, at that time, was owned and operated by the Carolina Creamery Company of Asheville. These local companies were merged with and became a part of Southern Dairies Incorporated in July 1927. A dozen years later Mr. Landreth became manager of Southern Dairies' Winston-Salem plant and subsequently Zone Manager which includes the Southern's Roanoke Virginia establishment.

There are great days ahead for North Carolina. A rising industrial tempo in a land where it is possible to have green grass twelve months out of the year holds a rich promise for the future. The State and the nation are fortunate that the men who are establishing the pattern of the dairy industry in North Carolina are men of Mr. Landreth's caliber, able, energetic, progressive, and possessed of a fierce loyalty to the things of the land that are good.

"Good Morning, Mrs. America — Here it is, in Pure-Pak!"

That's Milt Boyce, driver for Hilldale Dairy, making a delivery to Mrs. Marie Tarkett, Dubuque, Iowa, housewife.

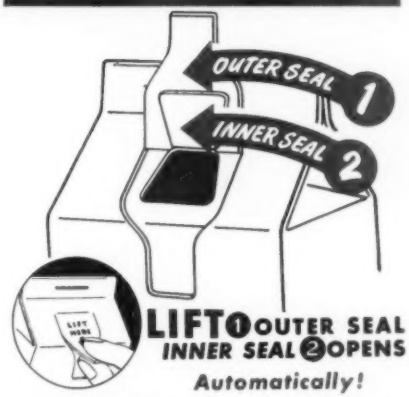
These scenes could be almost anywhere in the U.S.A., but they actually were photographed in Dubuque, Iowa, home of the Hilldale Dairy. Owned by veteran dairymen, Don Mueller and Cletus Frieburger, this progressive little plant enjoys a thriving business, both house-to-house and wholesale. With a single "Midget" machine and three well-trained men to handle the entire plant operations, Hilldale serves nearly 900 retail and 110 wholesale stops daily.

"BUSINESS DOUBLED, the first year, with Pure-Pak," say Don and Cletus, who began packaging exclusively in Pure-Pak in November, 1947, "everybody seems to be happy to have Hilldale milk in Pure-Pak containers—the public, the merchants, and all of us."

WRITE TODAY

A complete line of Pure-Pak milk-packaging machines for dairies of all sizes, with comprehensive merchandising cooperation. Use coupon below.

DOUBLE PROTECTION



LIFT 1 OUTER SEAL
INNER SEAL 2 OPENS
Automatically!

1 **OUTER SEAL**—the first seal to protect the purity of milk packaged in Pure-Pak.

2 **INNER SEAL**—this extra, built-in seal meets all Certified and Grade A requirements of health authorities everywhere. Only Pure-Pak offers built-in, double protection of purity—made possible by this automatic-opening inner seal—at no extra cost!

---------- MAIL THIS COUPON ----------

Pure-Pak Division—Ex-Cell-O Corporation . . . EST. 1919 . . . Detroit 32

PLEASE SEND COMPLETE INFORMATION ON:

☐ Milk-Packaging Machine . . . Model_____ ☐ Electro-Pure Pasteurizer . . . . . Model_____

☐ Semi-Auto. Ice Cream Pkg. Machine _____ ☐ Fully-Auto. Ice Cream Pkg. Mach. . . . Model_____

NAME _____

CITY _____ ZONE _____ STATE _____

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These 5 simple steps will help you increase your dollar vo

— on an item with double the profit margin of milk — Quality *Orangeade*

3

2

1

Green Spot

1- Select only a quality concentrate!

2- Follow Green Spot's mixing instructions to the letter!

...volume up to 10% or more

5

5-SELL! *Talk it up to your customers — get it started and repeat sales will take care of themselves.*

4

4-Advertise! *We Supply — FREE — a complete selection of 6 and 7 color sales promotion material*

3-Package attractively! glass or paper bottles available through all manufacturers

Green Spot

REMEMBER!

This simple 5-step program is all you need to increase your dollar volume up to 10% or more. (case histories in our files prove it!) But don't try to make money by pinching pennies. Green Spot costs more to buy — but costs less to sell. That's the only secret of the Green Spot success enjoyed by dairies the country over. Investigate now!

Call your jobber or write or wire

GREEN SPOT, INC., LOS ANGELES

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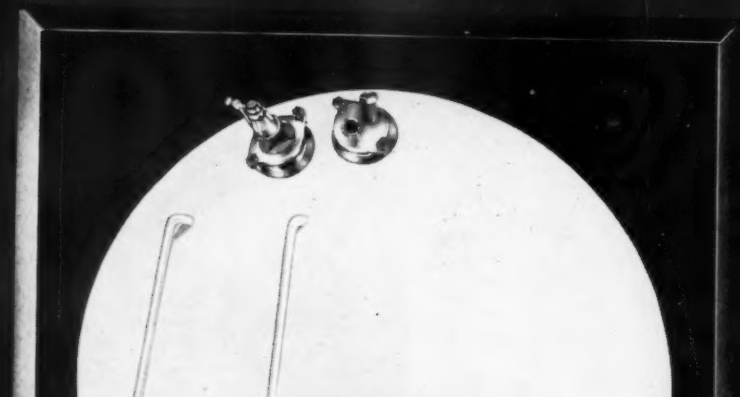
Learn how you benefit with

DAMROW Stainless Steel STORAGE TANKS



DAMROW Type E
Insulated Stainless Steel Tank
CAPACITIES, 1,000 to 10,000 GALLONS

Safer milk storage ... Increasing conservation ... engineered economical storage ... plus truly modern streamlined design ... you'll be proud to see at your modern plant — these all show the EXTRA VALUE you get in DAMROW Stainless steel Round Horizontal Storage Tanks. Owners call it their most valuable investment in milk handling equipment, an investment that pays off through years of longer service. Prove this — to your profit! Write for Bulletin TA-1708.

DAMROW BROTHERS' COMPANY

DAMROW COMPLETE EQUIPMENT FOR THE DAIRY INDUSTRY

NAVY STUDIES RELIQUEFIED MILK

Quality Control Proves Its Worth in Test Conducted by Navy Supply Corps School — Complete Review of Specifications for Powder May Be Necessary

YO HO HO AND A BOTTLE OF reliquefied milk has replaced the traditional salute to Jamaica rum aboard Uncle Sam's warships. No longer will the salty brethren who go down to the sea in ships relegate their milk consuming activities to ports of call. Milk is now an accepted part of a sailor's ration. And, what's more, they like it.

In a study of the acceptability of reliquefied milk aboard ship conducted by Lendal H. Kotschevar, Food and Equipment Technologist at the Navy Supply Corps School in Bayonne, New Jersey, it was found that the acceptability of reliquefied milk, was practically one hundred per cent. The milk that received this accolade was prepared from a whole milk powder which in its manufacture was known to have had careful quality control.

The tests took place aboard the Destroyer Escort Snyder during Operation Bermuda from July 31 to August 13 of last year. Their purpose was to compare the acceptability of fresh milk with a Navy issue of whole milk powder and with a whole milk powder that was produced under conditions of exacting quality control. The results were a feather in the cap of quality control. When served as chilled milk the quality control reliquefied product had a high degree of acceptability. When served as iced chocolate milk the sailors accepted it on a par with chocolate milk made from the fresh article. When used in cooking the boys could not tell the reliquefied product from fresh milk. The acceptability of the quality controlled product varied between 88 and 100 per cent depending on how it was served as a beverage. The Navy issue powder did not fare quite as well and came up with an acceptability spread between 19 and 72 per cent. Mr. Kotschevar concludes that "the high acceptability of the quality controlled powder by those who identified it indicates that even though the men knew they were drinking powdered milk, they found this particular type of milk sufficiently pleasing to label it "acceptable". But the fact that many of the men answering the questionnaires were able to distinguish between the quality controlled powdered milk and fresh milk indicates that there is still need for continued improvement in quality control of powdered milk during manufacture."

The tests were conducted under conditions as close to the ideal as it was possible to get. A great deal of effort was spent in providing a balanced diet and in maintaining satisfactory food standards. This was done because it was thought that any appreciable criticism of the food might be transferred to the milk. The fact that about 14 per cent of the men on the cruise found the food served to be excellent, 72 per cent found it "good", while 14 per cent labeled it as fair suggests that griping about food was well below service standards. A weight survey of twenty men showed an average gain of a pound per man, this in spite of a high incidence of sea sickness.

Interviews and questionnaires were used to obtain the data. Those men who did not drink milk were not required to answer the questionnaires. Water used for the tests while at sea was non-chlorinated, non-chilled water from evaporators. Navy cook book recipes were used for making the cocoa and iced chocolate milk drinks.

PANHANDLING MILK

Milk from the Texas Panhandle was recently shipped to the Tufts College Dental School in Boston, the Dry Milk Institute reports. Studies have shown that there appears to be less tooth decay in this area than elsewhere and the school wants to find out if elements in the Texas Panhandle soil have any influence on tooth decay. They believe the milk will carry any such elements. It will be used experimentally on laboratory animals. 80 gallons of whole milk was purchased near Lubbock for this purpose.

The milk powders were mixed in five-gallon lots in the proportion of one pound of powder to each gallon of water. All mixes were chilled at least 24 hours before using, except cocoa which was mixed and heated immediately for service. Mixing time during reliquefication was five minutes. Milk was stored for chilling in ten gallon cans but only five gallons were placed in each can.

Because the milk was made from tepid water and because the vegetable chill box, (which was the only box not overloaded and with sufficient space for storage) was not very efficient, milk held over 24 hours soured. To overcome this difficulty, one gallon of water during mixing was omitted and replaced by an equal amount of cracked ice. This chilled the milk sufficiently to permit holding it for a longer period of time. While the equipment was thoroughly cleaned and washed each time after use, no steam or other sterilizer was available. It may have been that the bacterial count on both mixer and cans was sufficiently high to have caused a much more rapid souring action than would have occurred if some sterilizing medium had been used. Since the tests occurred during midsummer heat, conditions were optimum for bacterial development.

Could Tell Fresh Milk

Test results showed that the majority of the men could distinguish between fresh milk and reliquefied regardless of the quality when served as a beverage and when served for use on cereal. The ability to distinguish between the types of milk used declined when the milk was served as cocoa or as chocolate drink. When it came to identifying which milk had been used in cooking no significant number of men were able to tell which milk had been used.

When called upon to distinguish between fresh milk and reliquefied milk 66 per cent of the men were able to distinguish between the fresh milk and the milk made from powder subject to quality controlled conditions. Most illuminating was the fact that when a milk powder not subject to exacting quality controls was used 95 per cent of the men knew that it was reliquefied milk. Where 22 per cent of the men could not tell the difference between fresh milk and reliquefied when the quality control powder was used, only 2½ per cent failed to distinguish between the regular navy issue powder and fresh milk.

When the quality control milk was served with cereal those who knew it was reliquefied and those who thought it was fresh milk were pretty evenly divided. When fresh milk was served, however, the percentage of those who knew increased substantially and the number who were not sure also increased. On one occasion regular navy issue reliquefied milk was served as a chilled milk. The men were asked if

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SYMBOLS OF HOPE

Each year on Memorial Day all America is asked to "Wear A Buddy Poppy". The national Buddy Poppy Sale is conducted annually by the Veterans of Foreign Wars to raise relief work funds for help to disabled and needy ex-service men and their dependents.

Made in government hospitals, the Buddy Poppies, so named by the war-disabled who fashion them each year, are a mute tribute to their "Buddies" who never came back. They recall the little red flowers that sprang up in the fields of Flanders as if to commemorate the lives of those gallant youths who fell there more than a quarter of a century ago in the first great World War struggle to establish an enduring peace. They recall, more freshly, the high toll of World War II in the same selfless cause.

President Harding, the first President to receive a V.F.W. Poppy, characterized it as "the outward and visible sign of an inward and spiritual remembrance."

they preferred this milk to the other types. The answers were 100 per cent "no".

Found Reliquefied Milk Pleasing

Mr. Kotschevar concluded that, "Type 'B' milk, the quality controlled product, has a high acceptability[1] when served as a beverage. The fact that this degree of acceptability corresponds almost exactly in each case with the acceptability of those who correctly identified the product, indicates that this acceptability is not based on a failure to differentiate between reliquefied milk and fresh milk but is based rather on the fact that the men, even though they were aware they were drinking reliquefied milk, found it pleasing to their taste and therefore acceptable. The high acceptability of Type 'B' milk on the part of those correctly identifying also indicates that there is little if any psychological objection to reliquefied milk.

"We have no reason to believe from the data that significant losses in nutritive values occur when milk is processed into powdered milk. If reliquefied milk of this type can be served in an activity where the diet is presently low in milk products, then additional important nutrients will be added to the diet which are essential to good nutrition. Also, the importance of milk in the diet, because of its satiety value, must not be overlooked and a high consumption of Type 'B' milk would be a material gain in the satisfaction of the men with their food.

"Had the acceptability of Type 'B' milk been due to the efficiency of the mixer used to reliquefy the milk, then Type 'C' regular Navy issue milk would have had a similar acceptance since Type 'C' milk was in every case reliquefied by the same machine.

"The count taken of those who did not drink milk during the first two days of the cruise when only fresh milk was served and no tests were conducted showed that 5.6% of the men did not drink milk. At the end of the cruise when only Type 'B' milk was being served a similar check indicated that 19.5% did not drink milk. This change is significant in view of the fact that the men were not aware that these checks were being made. It will be noted, however, that about 12% of the men in Table I indicated that the reliquefied milk was not acceptable. If this 12% is added to the 5.6% that originally did not drink milk, a sum is obtained approximating the 19.5% who did not drink milk at the end of the cruise.

"It is doubtful if this 19.5% of the crew who did not drink milk had an adequate diet, and, until this percentage is reduced to the percentage that normally would not drink fresh milk, search for a more suitable milk product must continue. A large portion of the fleet is for long periods of time without fresh milk supplies. It is important that we find a milk drink which will be available when this happens. This milk should have the ability to withstand the rigors of shipping and unusual climatic conditions.

"By powdering whole milk, its volume is reduced approximately 83% and its weight is reduced 87½c. No cold storage is necessary for its preservation and freezing will not materially harm it. These are important factors in shipping and handling. They are factors to consider in evaluating the utility of milk products aboard ship or in overseas bases.

"These investigations indicate that at present the Navy is not obtaining the highest quality milk powder which is being manufactured and that as a result the consumption of milk on board ship while at sea is materially below what it might be. It is very probable that a complete review of our specifications for purchasing whole milk powder may be necessary so that milks which do not meet a high acceptability rating from the men on board ship such as Type 'C' will be eliminated from consideration and a milk powder having the qualities of Type 'B' purchased instead."

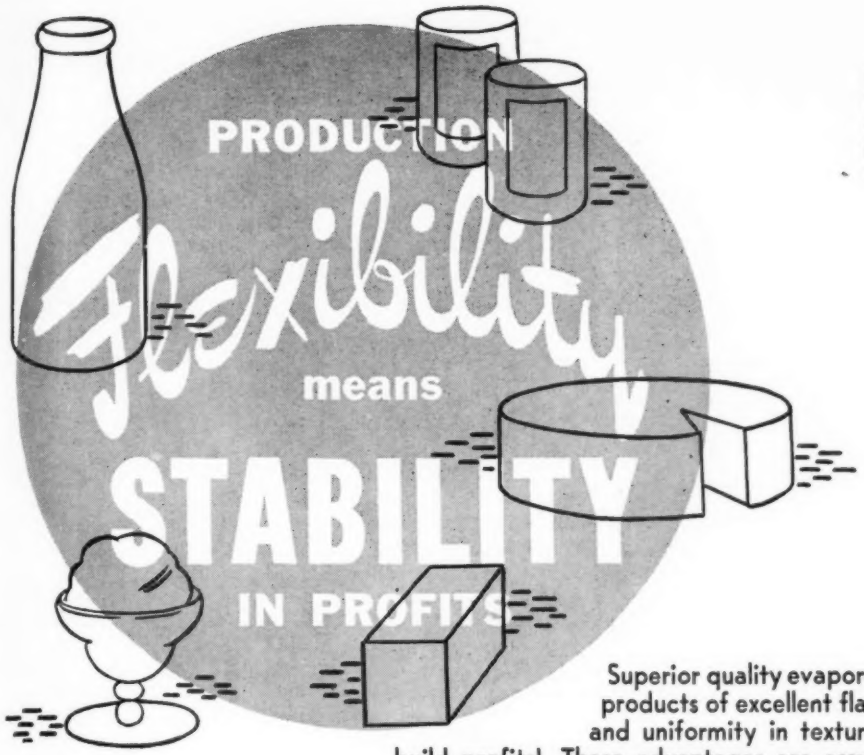
---

[1] "Acceptability" is used in no sense as "equal to" and it is believed that those participating in the tests did not interpret it as "equal to."

Dairy Daze

By Edgar Allen, Jr.

"WELL, YOU TOLD ME TO GO OUT AND DO SOME PICKING UP!"



For information on the new BUFLOVAK Milk Evaporators and Milk Dryers, write for Bulletins Nos. 343 and 344.

Superior quality evaporated, condensed and dry milk products of excellent flavor, exceptional smoothness and uniformity in texture, at low production cost build profits! These advantages are assured by the installation of BUFLOVAK Evaporating and Drying Equipment.

BUFLOVAK Stainless Steel Milk Evaporators are built in a wide range of sizes and types, from a small Single Effect designed for batch or continuous operation to Multiple Effects that save up to 67% in steam and 80% in cooling water. Positive control over all quality-making factors . . . rapid concentration . . . 99.9% recovery of milk solids . . . simplified operation . . . immaculate cleanliness easily maintained, are advantages traceable to the exclusive features and design of BUFLOVAK Evaporators.

Increase the flexibility of your plant, stabilize operations, and enjoy year-around profits by supplementing your BUFLOVAK Evaporator with the new model BUFLOVAK Milk Dryer that produces high quality dry milk products at low production cost.

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MORE ON PUBLIC RELATIONS

Newspaper Space Is Still Dominated by Price Stories but Declines Offer Excellent P.R. Opportunities — The Personal Touch Utilized Effectively by Some Companies

FLOWERS, A SURPRISE PARTY, and one hundred and seventy-six dollars in cash were given to Milton Gottschall, a routeman for the St. Lawrence Dairy Company, by his old customers when he was tranferred to a new route. The Douglas Aircraft Company ran a quarter page ad in the nation's leading newspapers showing glasses of milk cascading down from a huge airplane. The picture referred to the Berlin Airlift and the caption writ large said: "Milk — New Weapon for Democracy". Life found the picture of a cow trapped in a silo the picture of the week. Two newspaper stories a week apart in Nebraska and Minnesota declared that "Milks Leads in State's Prosperity".

These were a few of the public relation's feathers that have crept into the milk industry's cap during recent months. The industry can stand it. If it had feathers enough to make an Indian jealous the milk business would still not have enough. The job of creating and maintaining public goodwill has no end. If newspaper lineage is any indication, then the few feathers that are perched on the industry's hat brim are not in sufficient force to warrant any war whoops.

MILK...new weapon of Democracy!
Supplied by air transport alone, 2½ million Berliners sample a new way of life
In today's diplomatic Battle for Berlin, hope for democracy is being kept alive for millions in Western Europe by the U.S. Air Force.
Flying Douglas aircraft almost exclusively, Yankee crews have poured over half a million tons of supplies into Berlin since last June. This impressive feat has strained to the limit our resources in air transport. It has demonstrated conclusively that cargo planes in sufficient numbers must be considered essential to any modern military defense program.
Needed—and desperately—are larger, faster types of aircraft designed exclusively for air transport. And to meet this need, Douglas is now building the giant Douglas DC-6A. Able to fly 30,000 lb. loads at 300 mph, the DC-6A will make available to the military services a cargo transport of rugged dependability, capable of supplying world-wide bases in any kind of national emergency.
DOUGLAS AIRCRAFT COMPANY, INC.
DOUGLAS
SERVING MANKIND AROUND THE WORLD

The role of milk in building peace and extending the democratic philosophy is the theme of this advertisement put out by the Douglas Aircraft Company.

Oleo and Price in the News

An analysis of more than two hundred newspaper clippings gathered from all parts of the country during January and February shows that price and oleo are far and away the most popular subjects. Most of the headlines are more unfriendly than friendly or, at the very best, neutral. Samples picked at random say, "See 2-Cent Drop in Milk Prices". "County Women Pushing Fight to Color Oleo." "Dairy Officials Reluctant to Predict Price Drop." "Dairy Farmers Fight Cuts in Milk Prices." "Milk Price Drop Not Seen Before Next February." "Milk to Stay at 22 Cents." "Milk Price Cut Refused." "Herd Tester Reports Milk Prices Soar." Candidate for the first place as the headline best calculated to raise the hackles on consumer necks was a choice tidbit from Grove City, Pennsylvania. "Dairymen Raise War Fund to Maintain Prices" readers of the Grove City Herald were informed.

On the positive side of the newspaper ledger were such heartening stories as "Milk Leads in State's Prosperity", "Orderly Marketing of Milk Held Need Despite Surplus," "Wisconsin Leads Nation in Dairy Plants," and "Milk Dealers Get Nowhere in Attempt for Price Cut". The last headline is not any prize package but at least it puts the onus for failure to reduce prices on somebody beside the handler.

That the struggle for public favor has hardly been started is demonstrated by the prominence of topics dealing with public relations on the winter's round of conferences. Not a respectable meeting was held that did not devote at least one speaker to the subject while in several instances entire conferences were slanted toward public relations. The meeting of the National Cooperative Milk Producers Federation in Portland, Oregon, last fall was the outstanding effort in this respect. The annual winter conference of the National Dairy Council in Winston-Salem, North Carolina, produced some solid support for P.R. work. Most heartening phase of the N.D.C. thinking on the subject was the apparent realization that it takes more than words to make public relations work. Quality products, reasonable pricing policies, fair sales practices were some of the items that speakers listed as essential in holding present consumer levels, in other words, in maintaining public confidence and goodwill.

How to Skin a Cat

Oleo continues to be the rheumatic joint in the dairy industry body. It also continues to be handled about as poorly from a P.R. standpoint as it is possible to handle an issue. Vast majority of newspaper space and radio time supports the oleo people with butter sources constantly getting it right smack in the tub. Two stories of recent date illustrate the point. One story emanated from the office of the National Creameries Association and the other from the National Association of Consumers. One story opened "Hundreds of thousands of mid-western farmers will be forced out of the dairy

Public relations in the day to day activities of a routeman brought about this tangible result to the individual as well as to the dairy firm that employs him.

business if oleomargarine manufacturers win the present oleo-butter battle. . . ." The other story declared, "Fifty million American housewives received a kick in the teeth today when the House Agricultural Committee approved a bill that would prohibit the interstate shipment of yellow margarine." Three guesses which story came from where. Also three guesses on which story gets the biggest play.

On a national scale, the Douglas Aircraft ad pictured on this page was the largest piece of manna that has dropped from the public relations heaven in a long time. It was good in a number of different ways. In the first place it was dramatic. In the second place it tied in with an achievement known with pride by the western world. In the third place it was a stirring idea, the fight for democracy. And finally it reduced all of the great intangible issues down to something that ordinary folks could understand. Historians say that the advent of gunpowder raised the foot soldier, hitherto lower than the low, to a position equal to the knight in armor. Any peasant with a gun could knock off the most redoubtable of knights regardless of the caliber of his tin work. In this Douglas ad every breakfast table, with its pitcher of milk, suddenly becomes an active factor in the mighty struggle for a world. The most remarkable fact about this bit of public relations is that it was an aircraft manufacturer and not a dairyman who saw the power in the story.

Kindness and Business Can Mix

Public relations activities on a local scale are inclined to be spasmodic and fickle. One day some up and coming operator turns out with a nice little common sense twist that is worth its weight in gold and the next day somebody blunders into a situation with both pasteurizers and a holding tank. What good public relations on the local scene can mean was superbly demonstrated up in Reading, Pennsylvania, on the last day in February. Milton A. Gottschall, who has been a routeman for the St. Lawrence Dairy Company in Reading for twenty-four years, was transferred to an easier, shorter route. The folks that Mr. Gottschall had served during that period got up a surprise party in his honor. His customer-friends backed up their good wishes by the tangible evidence of one hundred and seventy-six dollars. The Reading Times gave almost three full columns to the story including a three column picture and a two column picture.

The story itself reads like a P.R. man's dream. "Customers He Served for 20 Years Give Party, Cash, Bouquet to

(Please turn to Page 37)

IMPROVING THE QUALITY of incoming milk is a matter of educating your producers ...and that's where the LO-BAX "PMQ" plan fits right into your picture.

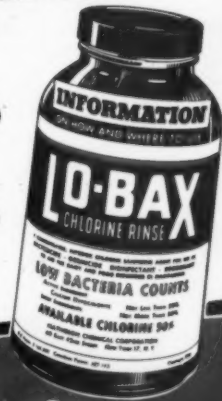
In numerous ways the LO-BAX promotion plan can persuade your producers to do a better job of killing bacteria. LO-BAX letters and folders for enclosing with milk checks tell them how and why they should use a chlorine rinse regularly. LO-BAX posters, milk house instruction cards and booklets on milk sanitation—*plus* LO-BAX advertising—plus LO-BAX itself—all go to work for you to bring more top quality milk your way.

Boost your volume. Raise your profits. Strengthen your competitive position. Write today for full information about the LO-BAX "PMQ" Program. Mathieson Chemical Corporation, 60 East 42nd Street, New York 17, N. Y.

LO-BAX 50% AVAILABLE CHLORINE

A Highly Efficient Chlorine Bactericide

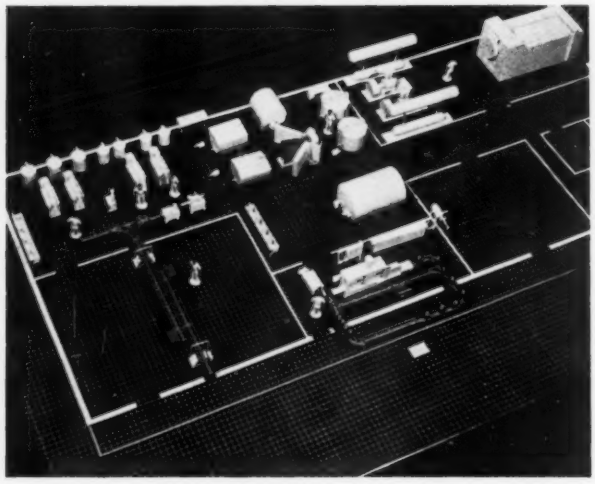
- A FAST KILLER
- EASY TO HANDLE AND USE
- STABLE (doesn't lose strength)
- GIVES CLEAR DAIRY RINSE SOLUTIONS
- READILY DISSOLVING
- HARMLESS TO COWS' UDDERS AND MILKERS' HANDS



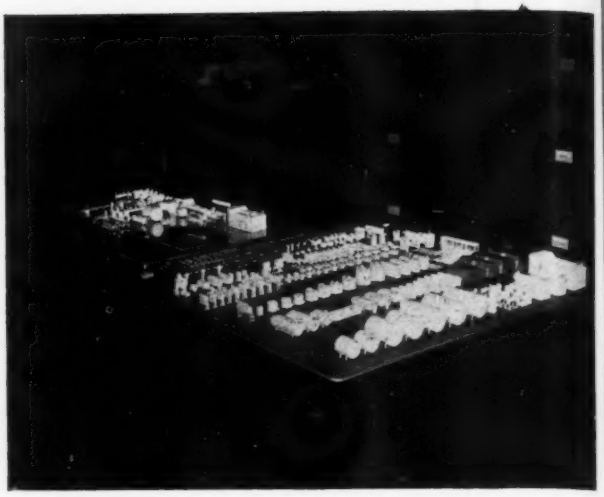
PMQ
PROTECT MILK QUALITY

Mathieson
LO-BAX

Lo-Bax . . . Super Molox . . . HTH-15 . . . Dry Ice
Carbonic Gas . . . Ammonia, Anhydrous & Aqua
Caustic Soda . . . Soda Ash . . . Bicarbonate of Soda
Liquid Chlorine . . . Chlorine Dioxide . . . PH-Plus
Sodium Chlorite Products . . . Sodium Methylate



By using models and tapes of different colors a plant can be set up so that the dairyman can see it before he builds it. Models and tape can be rearranged as circumstances dictate.



Some idea of the number of models that are required to enable designers to meet the variety of demands that individual plants present may be gained from this array of miniature equipment.

SEE IT BEFORE YOU BUILD IT

Cherry-Burrell's Scale Models of Dairy Processing Equipment Give Dairyman Opportunity to See Plant Arrangement in Three Dimensions Before Work Begins

ONE OF THE QUALITIES that a good engineer possesses is called special perception". He can lay out a biuld-ing or a machine on a drawing board and in his mind's eye see it in three dimensions, see it as it will look when built. A musician can do the same thing with a tune; that is, look at a score on paper and hear it in his mind. Some folks have it, some folks don't.

For most people the task of looking at a blue print and visualizing what the drawing means is difficult. In order to overcome this hurdle the use of scale models has been employed in many phases of industry and art. An artist, for example, will make a small scale model of the statue that he proposes to carve. The automobile industry uses scale models and even goes so far as to build a full size car before putting a new model on the production line. Architects often supplement their drawings with models of the building on which they are working.

Recently Cherry-Burrell has applied this model idea to the design of dairy plants. All of their branch offices carry an extensive set of dairy plant equipment models built on the scale of a quarter inch to a foot. By placing the models on a glass covered board that is laid out with quarter inch squares, each square representing a square foot, any conceivable plant can be set up. In an industry where every plant has its own particular problems the use of a system of models has a definite value.

"Dairy plant design and operation, paralleling experience in many other industries, requires special arrangement of both equipment and rooms to accomplish the lowest possible cost of operation. The building housing a dairy operation should be basically functional in design, that is, designed around the equipment arrangement instead of trying to fit a processing equipment set-up into a standardized building. In general, men who know the dairy industry in intimate details of operation should do this planning. Dairy equipment manufacturers who place their apparatus in thousands of operating plants therefore can supply these basic functional building arrangements and should usually do so before the architect is called in to design the building. Three-dimension scale models of equipment materially improves the visualization of the functional building design to accomplish this type of dairy plant management."

The models are carefully made reproductions of standard plant equipment. The right hand picture on this page shows the large number of pieces that are required in order to meet the varying requirements of dairy plant layouts. There are holding tanks, separators, conveyors, pasteurizers, coolers, bottling machines, and even milk cans included in the collection. It may sound like an unnecessary refinement to carry the idea out to the point of having miniature milk can and bottle crates. But, as Brooks Jakeman, branch manager of Cherry-Burrell's New York office pointed out, a dairyman wants to know how much room he must devote to cans and crates. By using the models he can see just how much space in his plant will be taken up by these items of equipment and adjust his calculations accordingly. It is a great deal easier to change or move a strip of tape than it is to move a partition. A three inch model holding tank can be shifted with a lot less effort than it takes to move the real article.

When using the models to set up a dairy plant the walls, platforms, and partitions are indicated by narrow strips of tape. Different colored tape is used to indicate specific types of walls. For example, in the plant lay out shown in the left hand picture on this page the outside walls are shown with white tape. The dark tape on the inside of the white lines mean cork insulation while the grey lines in front indicate loading platforms. Generally pipelines are not shown although it is possible to put such lines into the model.

The planning board on which models are placed is merely a large flat surface ruled into ¼" squares each square representing one square foot. For convenience it can be covered with glass to facilitate the application of colored scotch tape. The scotch tape is ured to indicate building wall construction. When the planned arrangement is completed a permanent photographic record is made.

Griffith Bixby, manager of sales engineering in the Cherry-Burrell organization carried forward the development of the models. For a number of years the company has had models of particular pieces of equipment. Continuous experimenting with the models demonstrated their value in helping the dairyman to visualize his requirements. As a result of this experience sets of the models have been placed in all Cherry-Burrell branches.

Dairymen have apparently found the models extremely helpful in developing their ideas for remodeling or for new plants. It all goes back to that faculty of spacial perception. Few dairymen are engineers and consequently have some difficulty in visualizing a plant from the plans laid out on a blue print. By means of the scale model they can get a good three dimensional picture of what they want to do and what it will look like when completed.

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Roud McCann - Dairyman

Director of American Dry Milk Institute Served the Dairy Industry for Forty Years — Was Active in Educational Circles

ROUD McCANN, for twenty years director of the American Dry Milk Institute, died at his home in Highland Park, Illinois, on March 17.

Mr. McCann was born, August 17, 1887, on a farm in Western Kansas near Emporia. He worked on his father's farm there and later on a ranch which his family purchased in Northwestern Colorado. In that area at that time there were no high schools, but with the help of his country school teacher he prepared himself for entrance to the Colorado State College of Agriculture, Ft. Collins, Colorado. He worked his way through college, graduating with a degree in dairy science.

Even in his school days he showed his abilities for organization. He became the head of the battalion of troops at the College. On graduation, he became Secretary of the Alumni Association. His interest in both dairying and association work continued throughout his life.

In 1911 he became Deputy State Dairy Commissioner for Colorado and later Commissioner, and joined the faculty of Colorado A & M College as Associate Professor of Dairy Husbandry. In 1914 he became Secretary of the Colorado State Dairyman's Association, later organized Colorado State Dairy Council, then consolidated these organizations into the Colorado Creamery Butter Manufacturers Association of which he became Executive Secretary.

In 1920 he left Colorado to serve briefly with the National Dairy Council in Chicago, returning to Colorado as Director of the Colorado Extention Service in Agriculture and Home Economics for a period of eight years. In 1928 he obtained his Masters Degree in Business Administration at Northwestern University, Evanston, Illinois, and in 1929 became Director of the American Dry Milk Institute, Inc., Chicago, a position he held until his death.

One of Mr. McCann's great interests was the Roud McCann Scholarship set up in his honor on April 19, 1944, by a group of his friends.

In addition to his work in the dairy field, Mr. McCann served as President, Trade Association Executives Forum of Chicago 1945-46. For three years he was a member of the Board of Directors of the American Trade Association Executives and served as Chairman of several committees of that organization at different times. He also served as instructor at the National Institute conducted annually at Northwestern University by the American Trade Association Executives.

"Just Plain Horse Sense"
"It's just plain horse sense," says the practical Dairyman, "to LOOK BEYOND FIRST COST when you buy new milk cases." Look for the most MONEY SAVING SERVICE, day by day, month by month, for years, through SAVINGS in:
1. BOTTLE BREAKAGE
2. REFRIGERATION
3. TRANSPORTATION
4. REPLACEMENT
5. REPAIRS
In every department you have bettered your costs — but your milk delivery cost has INCREASED EVERY YEAR for years. Why continue that process? — Why not cut your milk delivery costs even more than you have been able to cut any other cost? Our Aluminum Milk Case will convert more of these delivery cost dollars to PROFIT DOLLARS than you ever thought possible.
It's the end of the year "Profit-Column" figures that count. That's where we can help —AND IN A TREMENDOUSLY BIG WAY. Suppose you drop us a line and let us give you further information.
C. E. ERICKSON CO., INC.
DES MOINES, IOWA

WON'T YOU HAVE A SEAT MADAME

Certified Milk Has Come to Curtiss Candy's Farm 711 But Bovocratic Society Takes It All Calmly and Says "Why Naturally"

"EVERY COW in this barn is a lady and should be treated as such", will come as strange doctrine to farmers who are accustomed to address their charges as miserable off-springs of a presidential pronounciamento. Yet on fabulous Farm 711 at Cary, Illinois, owned by the Curtiss Candy Company the idea of chivalry in relation to things bovine is part and parcel of operating doctrine.

Few cows anywhere in the world are housed as luxuriously as the four footed ladies of Farm 711. The barn is the blue chip creation of a horse racing gentleman and at one time housed a "Derby" winner. No expense was spared in the construction of the building but when the horseman realized that Kentucky weather was more suitable for his thoroughbreds, than the Illinois vintage, he sold the property. The Curtiss Candy Company purchased the farm and, with slight alterations, transformed the erstwhile horse paradise into one of the dairy show places of the nation.

Farm 711 is composed of 831 acres on the shore of Fox River. It is one of a large number of farms owned by the Curtiss Candy organization in this section of Illinois. The entire Curtiss farming project embraces 7,500 acres and spreads over four counties in the area northwest of Chicago. An extensive breeding program is carried on among four breeds: Guernsey, Holstein, Brown Swiss, and Ayrshire. Some of the finest pure breds of each breed are chewing their cuds in the 711 stables.

Recently the farm entered the select group of establishments qualified to produce certified milk. E. T. McEnery, secretary of the Chicago Medical Milk Commission and president of the American Association of Medical Milk Commissions said:

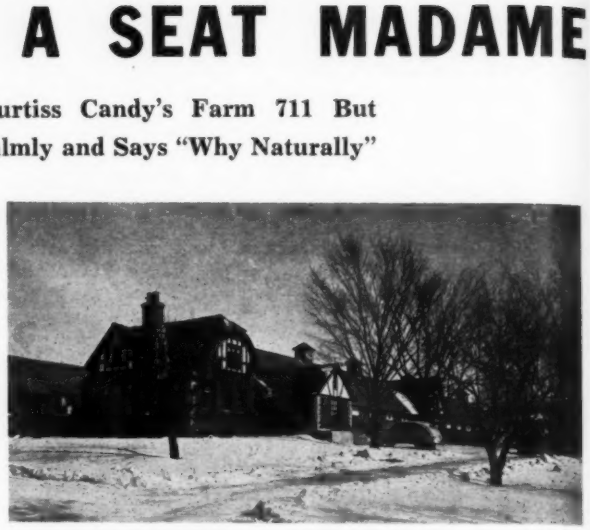
"This Curtiss Candy Farm is a model farm and no drastic changes in the good dairying practices already in effect at Farm 711 had to be made to make the farm eligible to produce 'Certified Milk'. Undoubtedly there are other idealistically-minded dairymen in other sections of the country doing an exceedingly good job who could qualify if they only investigated.

"We are pleased to have Curtiss Candy Company in our organization and we are particularly impressed, not only with what they are doing to produce a clean milk, but also that they are continually enriching the soil to yield more nutritious grain and grass to feed to the cows."

The farming operations of the Curtiss Candy Company are conducted along Bunyanesque lines. In addition to their extensive dairying operations, they raise 540,000 chickens annually, most of which are sold to hotel dining rooms in Chicago, 20,000 ducks, 8,000 turkeys, and 40,000 trout.

William E. Hunter is general manager of the farm and Delbert H. Kingston superintendent of livestock. It was under their planning and work that Curtiss dairy animals in 1948 racked up twenty-nine Grand Championships, six Reserve Grand Championships, twenty-seven Senior Championships, forty-one Junior Championships, and three Reserve Junior Championships.

Farm workers employed number 350. This includes two full-time veterinarians, an agronomist, and college trained agriculturalists.



Looking more like the estate of a prosperous country gentleman than a center of milk production, Curtiss' farm 711 at Cary, Illinois, produces some of the finest milk in the land.

On the dairy barn walls hang the famous signs that express the philosophy that governs the handling of these horned aristocrats: "Every cow in this barn is a lady and should be treated as such."

"We always have worked toward perfect housekeeping on our farms," Otto Schnering, founder and president of the Curtiss Candy Company, who takes a personal interest in all the farming operations, stated recently. "We are trying to set a high standard of sanitation and cleanliness. We feel that this method creates greater self-esteem in the individual worker, greater respect for his company and its products, and above all, he is constantly reminded of his obligation and responsibility for the welfare of the consumer of our products.

"Our thought is not to have our barns clean just once or twice a day and the animals live in soiled unsightly conditions the rest of the time. Our principle is that it is no more work to keep a place clean than it is to let it get dirty and then have to clean it again."

The "Certified Milk" produced at Farm 711 will be purchased in bulk by the Brook Hill Farms, Inc., of Chicago and Genesee Depot, Wisconsin. The increase of "Certified Milk" business by Brook Hill in the Chicago area resulted in Curtiss Candy Company Farms being able to enter the field without becoming a processor and distributor.

Such an arrangement was approved two years ago by the American Association of Medical Milk Commissions after more than fifty years of holding to the principle that all "Certified Milk" had to be bottled on the farm where it is produced.

"With modern means of transportation and refrigeration and since the milk is being pasteurized, it was decided that 'Certified Milk' could be processed in city plants as long as the equipment was freshly sanitized before this milk was handled," Dr. McEnery explained.

To the blue blooded creatures of 711's "four hundred" the advent of certification has been received with well bred reserve. After all, they say, it's breeding that counts. And when it comes to breeding these ladies have a pedigree that would put the Boston social register to shame.

MORE ON PUBLIC RELATIONS

(Continued from Page 33)

Milkman", the headline said. "Friendliness paid a dividend yesterday for Milton A. Gottschall, Reading milk route salesman" was the lead sentence. Note how "milk" and "friendliness" are tied in together. "His reward for friendly, courteous, helpful service: A huge bouquet of flowers to which were attached 176 dollars in cash and war bonds. The money came from approximately 176 of his customers, most of whom he has served for at least two decades." Other parts of the story dealt with the small favors Mr. Gottschall had done along the two dozen years he was on the route. "He was wonderful with children." "He was always doing nice, thoughtful things for people." "He even went down to the court house with me to help me get my naturalization papers." "I had an invalid mother who could walk only with difficulty. Every day Mr. Gottschall would take the milk right to the refrigerator for her, then sit down for a minute to chat because he knew she didn't see many people." Those are the sort of things that all the money in the world cannot buy, but their value to the company is almost beyond calculation.

Treated Customers as Friends

Just what were the values derived and the techniques involved? It is simply this; Milton Gottschall treated his customers as friends and as a result they became friends. It is as simple as that. It is hard to believe that he had a great deal of difficulty explaining price increases to the people on his route. It is hard to believe that the good will which these Reading people entertained toward their milkman did not carry over into good will toward the St. Lawrence Dairy Company. Also, knowing just a little bit about the public relations astuteness of the St. Lawrence Dairy Company, it is hard to believe that they were not aware of the fact that they had a first class ambassador in the person of Mr. Gottschall and did everything they could to help him. So many, many times dairymen overlook the fact that the biggest gun in their public relations arsenal is the route man.

The newspaper story demonstrates another facet of the public relations program. Newspaper editors are interested in news. Milk is news. If a dairyman gets fined because he sells unsanitary milk that is news. If the price of milk goes up that is news. If the price goes down that is also news. If a routeman is tendered a party by his customers that is news too. The point is that regardless of the good or bad effects of a story on the milk business the good editor will print it because it is his job to disseminate news. The job of the dairy plant operator in his relation to the newspaper editor is to call the editor's attention to the good stories and be sure that he gets all of the facts on stories that may not be so complimentary. But above all the dairyman should not try to get the editor to print something that is not news nor surpress something that is.

In retrospect the P.R. picture shows definite signs of improvement. Oleo is still the big headache but even here, industry leaders are showing some signs that indicate that the realities of the problem are beginning to sink in. Constant discussion of public relations and public relations techniques is creating an increased awareness and appreciation of the problem among milk dealers as well as some idea of the techniques. Much remains to be done, however. One of the most promising avenues open to dairymen, and yet for the most part unexploited, is price reduction. When General Motors knocked ten dollars off the price of a $1,500 car it was front page news all over the country. A one cent reduction in the price of milk is almost five per cent. It has very real possibilities from a public relations standpoint. It should be exploited as fully as possible.

SMALL PLANTS

are among our best customers

With the largest and most completely equipped organization in the well water developing field, Layne has always provided excellent service for even the smallest plants. In no case have they had to pay a penalty for Layne's world-wide experience and outstanding success. As a matter of fact, Layne Well Water Systems actually cost less when the advantages of unquestionable high quality, proven efficiency and extra long life are considered.

Small plants receive the same professional engineering, skillful workmanship and high quality equipment as is always provided for the largest industries. The only difference is in the size and capacity of the units installed. Several thousand small plants already have their own Layne Well Water Systems. All are highly pleased with their sound investments; the economy of operation cost and the complete dependability of the units at all times.

Small plants of all kinds;--mills, factories, theaters, food processors, packers, railroads, ice plants etc. are invited to make inquiries and to obtain catalogs about Layne's complete service which includes surveys, water strata explorations, well drilling, pump installations etc. for a complete, thoroughly tested and in operation well water systems. No obligation. Address LAYNE & BOWLER, INC., General Offices, Memphis 8, Tenn.

LAYNE

WELL WATER SYSTEMS

AFFILIATED COMPANIES: Layne-Arkansas Co., Stuttgart, Ark. * Layne-Atlantic Co., Norfolk, Va. * Layne-Central Co., Memphis, Tenn. * Layne-Northern Co., Mishawaka, Ind. * Layne-Louisiana Co., Lake Charles, La. * Louisiana Well Co., Monroe, La. * Layne-New York Co., New York City * Layne-Northwest Co., Milwaukee, Wis. * Layne-Ohio Co., Columbus, Ohio. * Layne-Pacific, Inc., Seattle, Washington * Layne-Texas Co., Houston, Texas * Layne-Western Co., Kansas City, Mo. * Layne-Minnesota Co., Minneapolis, Minnesota * International Water Corporation, Pittsburgh, Pa. * International Water Supply, Ltd., London, Ontario, Canada * Layne-Hispano Americana, S. A., Mexico, D. F.

DR. ROBERT F. HOLLAND

Problems of the Industry

DR. JAMES C. WHITE

Dr. Robert F. Holland and Dr. James C. White, both of the Department of Dairy Industry at Cornell University, conduct their question and answer column each month in the "Review". Questions should be addressed to either Dr. White or Dr. Holland, Department of Dairy Industry, Stocking Hall, Cornell University, Ithaca, N. Y.

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Bacteria and Oxidized Flavors

QUESTION—I have a question to present to your section of "American Milk Review" called Problems of the Industry.

We are having an off flavor in our milk that develops in 2 to 3 days which we think is an oxidized flavor. What can we do about this? I have heard that addition of buttermilk (or culture) will help retard this off flavor. Do you think this will help, and, if so, how much should we add?

E. J. H., Ohio.

ANSWER – In all probability, the trouble you have is an oxidized flavor, and it is true that the addition of buttermilk or culture will help prevent this condition.

Oxidized flavors are caused by a chemical reaction of the milk materials with oxygen from the air. This oxygen is actually dissolved in the milk and the flavor can be prevented if the oxygen is not allowed to remain in contact with the milk. If we remove the oxygen by mechanical means–that is, by vacuum–we can prevent oxidized flavors in large part. The addition of starter organisms will act in the same way because the bacteria use oxygen in their life processes and remove the oxygen so that it cannot react with the milk constituents.

However, such cultures contain large numbers of bacteria and considerable quantities of acid. Health authorities will object strenuously to the addition of starter because it increases the bacterial count and the acidity so that the product will not pass the sanitary requirements and such milk would sour very quickly after delivery.

In the days before we had milk quality programs on farms, the milk received at the station was of high bacterial content, and we did not have so much trouble with oxidized flavors as now. Strange as it may sound, the better the milk supply becomes, the more trouble we have with oxidized flavor, because the natural milk does not contain enough organisms to keep the oxygen content low.

There are many factors which contribute to oxidized flavor by increasing the speed of action between oxygen and milk constituents. One of these is copper-bearing equipment, because some of the copper will dissolve in milk and speed up the deterioration. Another contributing factor is light, which is often involved in the problem. We would suggest that you look over your equipment and eliminate copper as far as possible, remembering that white metal fittings and valves contain copper and can be almost as detrimental to flavor as the pure metal.

There is information available on commercial enzymes which might be added to prevent oxidized flavor, although their addition is illegal in many markets. Addition of vitamin C may stop the oxidized flavor in some cases. Complete destruction of the vitamin C naturally present will also minimize this trouble, but any of these treatments are liable to be contrary to sanitary regulations or adulteration laws.

There is no simple solution to the problem of oxidized flavors.

Soft Curd Milk

QUESTION—We have heard considerable talk about soft curd milk. Will you tell us what is involved in the production of soft curd milk and what the potential market may be?

E. F. M., Ontario, Canada.

ANSWER – When milk is taken into the stomach it is coagulated by action of the stomach juices. Human milk tends to form a soft, finely divided curd while cow's milk, in general, forms a much tougher, more solid curd. In infant feeding and in the feeding of some invalids there seems to be an advantage in the softer, finer curd in that it is more easily digested.

For this reason, considerable emphasis has been placed on soft curd cow's milk particularly in some areas and numerous methods have been devised to produce it. One of the earliest was by selection of cows producing soft curd milk since there was found to be wide variation between animals in this respect. It was later discovered, however, that cows suffering from mastitis tended to produce soft curd milk and this method has been generally abandoned.

The most common practice at present is to homogenize the milk. An homogenizing pressure of 2,500 pounds per square inch will ordinarily reduce the curd tension by 50 per cent or more.

An enzyme treatment and the subjection of milk to a suitable zeolite, as in a water softener, have also been used

to produce soft curd milk. Neither method has come into wide use.

Evaporated milk is soft curd in nature because it has been subjected to high heat treatment and homogenized as well. This, in addition to its being free from bacteria, is the reason for its popularity in infant feeding formulas.

With regard to marketing possibilities for soft curd milk, it would be very difficult to predict without making a study of the particular locality in which you operate. I would advise that you contact some of your local physicians on this because sales would be largely restrictd to families with small children and to hospitals.

Information regarding the testing of milk to determine curd tension may be obtained from the book, *Market Milk and Related Products*, by H. H. Sommer.

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Seminar In Connecticut

The first meeting of the "Dairy Plant Management" Seminar will be held at the University of Connecticut, April 12 and 13, 1949. It is planned to hold meetings on a different State University campus each year. The Dairy Department of Rhode Island State College and the Universities of Vermont, New Hampshire, Massachusetts, Maine and Connecticut are sponsoring the Seminar. The following are a few points of interest concerning the Seminar.

1. The land Grant Colleges established the Seminar to provide communion of knowledge, ideas and experience for the most profitable conduct of the dairy business and to better relate teaching and research to current industry problems.

2. This year's program will cover three very important phases of management—LABOR, PRODUCT HANDLING AND PHYSICAL PLANT. Some of the subjects to be discussed are "Pay Incentive Plans", "Evaluating Manpower Performance" and "Plant Layout and Efficiency".

3. Among the speakers are such industry leaders as—T. J. Devine, Taunton, Mass.; L. C. Anderson, Schenectady, New York; Howard Putnam, Springfield, Mass.; Joseph Niedermier, Bridgeport, Conn.; C. R. Brock, New Haven, Conn.; and H. C. Dunlop, Boston, Mass.

All registrations must be made by mail on the enclosed form and mailed to Professor E. O. Anderson, Secretary, Storrs, Conn. Registration is limited to 200, of which 138 can be housed in our new University Dormitory. Please register as soon as possible. Enrollment must be limited because of housing facilities and meeting room accommodations.

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H. H. Neel, National Dairy

After a long and distinguished career, Harrell H. Neel, a vice president and a director of National Dairy Products Corporation, died in New York suddenly on Wed., February 23.

Mr. Neel, who was 54, had attended meetings at National Dairy headquarters, 230 Park Avenue, during the previous day, and had dined with business associates. Death came to him during his sleep in his room at the Hotel Pierre.

In a statement, L. A. Van Bomel, president of National Dairy said: "Hundreds of men in the dairy industry will mourn the death of Harrell Neel. He was an able and beloved colleague, and a man of great civic spirit. His faithful service and conscientious devotion to duty was a source of inspiration to all of us in our company. We shall miss his friendly presence and wise counsel."

A native of Louisville, Ky., Mr. Neel had risen from the job of milk driver to his high position in National Dairy.

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COMPARISON OF RAW MILK GRADES

Using the Methylene Blue Test and the Sediment Test Idaho Scientists Turn Up Some Disturbing Results in Their Study of Milk at the Receiving Platform

By J. C. BOYD

Idaho Agricultural Experiment Station

and

LESTER HENDRIX

Idaho Department of Agriculture

THE PURE FOOD and Drug Administration deems a food to be adulterated if it consists in whole or in part of any filthy, putrid, or decomposed substances, or if it is prepared, packed or held under unsanitary conditions (1).

Excessive amounts of sediment in milk and cream is considered as filth. Regulatory agencies both state and federal are placing more and more emphasis on sediment in milk and cream, and as a result, managers of milk processing plants, as well as milk producers are becoming convinced that milk which is clean as determined by the sediment test is good quality milk. The sediment test in many instances has become the only yardstick for determining whether milk or cream is acceptable.

In order to obtain some definite information relative to the effectiveness of the sediment test in detecting milk of poor sanitary quality, comparisons were made of the sediment test and the 5½ hour methylene blue test.

The methylene blue test was selected for this comparison because it is recognized in the United States as a standard method for the examination of milk (2) and is approved by the American Dry Milk Institute (3) and other organizations as an acceptable test for the sanitary quality of milk. This report deals with the results of this comparison.

Samples at Receiving Platform

Milk samples for the methylene blue test were taken from individual cans of patrons' milk at the receiving platform of representative milk processing plants. A 10 ml. portion was taken from each can into a sterile test tube. The dipper used was rinsed and sterilized before taking each sample. The samples were iced until approximately 120 samples had been collected. One ml. of methylene blue solution prepared fresh daily according to Standard Methods of Milk Analysis (2) was then added to each tube. The milk and dye were mixed and the samples were warmed quickly to 98° F. and held at that temperature (±1° F.) throughout the incubation period. The samples were not inverted after the milk and dye were mixed. The samples were graded as follows:

A Grade – not decolorized in 5½ hours
B Grade – decolorized in 5½ hours, but not in 2½ hours
C Grade – decolorized in 2½ hours, but not in 20 minutes
D Grade – decolorized in 20 minutes or less

The sediment test was taken from the same individual cans of milk immediately after taking the sample for the methylene blue test. Sediment tests were taken with a long barreled, manually operated, off-the-bottom, sediment tester with the operator using a standard procedure for each can of milk. This procedure consists of moving the tester in a straight line across the bottom of the can, as the plunger is pulled up and the milk is sucked into the tester.

Licensed milk graders or dairy inspectors of the Idaho State Bureau of Dairying took these samples, but in every case dairy inspectors of the Idaho State Bureau of Dairying determined the sediment grades. Sediment standards approved by American Dry Milk Institute, American Butter Institute, and Evaporated Milk Code are used in Idaho for determining sediment grades and any pad showing more sediment than the No. 3 disk is considered illegal milk.

Of the five milk processing plants included in the study, two plants manufactured butter and non fat milk solids, one manufactured evaporated milk and two manufactured cheddar cheese.

Both Tests Necessary

Table I shows the distribution of methylene blue grades into the various sediment grades for the total of 602 individual cans of milk sampled at five milk processing plants.

Of the samples that graded A by the methylene blue test (retained the blue color 5½ hours or more), 14 per cent were graded as No. 4 by the sediment test. Thus, a good portion of the good quality milk as determined by the methylene blue test was found to be dirty.

Of the samples that graded D by the methylene blue test (reduced the blue color in 20 minutes or less), 19.1 per cent were graded No. 1 by the sediment test, 50.9 per cent were graded as No. 2, 1947 per cent as No. 3 and 10.1 per

Table I
DISTRIBUTION OF METHYLENE BLUE GRADES INTO SEDIMENT GRADES

—Methylene Blue—			Sediment Grade							
	No.	Per	—1—		—2—		—3—		—4—	
Grade	Samples	Cent	No.	%	No.	%	No.	%	No.	%
A	100	16.6	10	10	45	45	31	31	14	14
B	197	32.7	21	10.6	88	44.6	52	26.3	36	18.2
C	148	24.5	26	17.5	63	42.5	37	25.0	22	14.8
D	157	26.0	30	19.1	80	50.9	31	19.7	16	10.1
Total	602	100.0	87	14.4	276	45.8	151	25.0	38	14.6

Table II
PERCENTAGE OF SAMPLES IN EACH METHYLENE BLUE AND SEDIMENT GRADE BY PLANTS

	Percentage of Samples in each —Methylene Blue Grade—				Percentage of samples in each — Sediment Grade —			
Plant No.	A	B	C	D	1	2	3	4
1	20.8	33.3	26.6	19.1	2.5	55.8	33.3	8.3
2	11.6	32.5	26.6	29.1	6.6	56.6	27.5	9.1
3	19.1	40.8	21.6	18.3	7.5	45.0	25.0	22.5
4	18.1	19.0	20.6	42.1	26.4	31.4	23.1	19.0
5	13.2	38.0	27.2	21.4	28.9	40.4	16.6	14.0
Average	16.5	32.7	24.5	26.0	14.4	45.8	25.1	14.6

cent were graded as No. 4. Thus, only 10.1 per cent of the samples graded as D grade by the methylene blue test were found to be excessively dirty. However, an additional 76 samples which graded A, B, and C by the methylene blue test were found to contain excessive amounts of dirt. As dirty milk can not be tolerated regardless of its other qualities, this milk must also be considered poor quality.

These results show that there is no correlation between the sediment test and the methylene blue test. This is as expected. However, these results do show that relying on the sediment test alone is not an adequate means of grading out milk of poor quality.

Table II shows the percentage of samples from each of the five milk processsing plants, that fall into each methylene blue and sediment grade.

The only correlation shown between the sediment grade and methylene blue grade is that in most cases (4 out of 5 plants) the methylene blue test graded a larger percentage of the samples as D grade than the sediment test graded as No. 4. The exception is plant No. 3 which has a slightly larger percentage of the samples graded No. 4 by the sediment test, than were graded D grade by the methylene blue test.

The percentage of samples grading D grade by the methylene blue test varied from 18.3 per cent to 42.1 per cent with an average of 26.0 per cent. The percentage of samples graded No. 4 by the sediment test varied from 8.3 per cent to 22.5 per cent and averaged 14.58 per cent.

Too Much Poor Milk

1. Comparisons of the methylene blue test and the sediment test on 602 individual cans of milk from five representative milk processing plants, showed 26 per cent of the milk sampled to be of poor sanitary quality (decolorized methylene blue in 20 minutes or less) and that 14.5 per cent of the milk sampled contained excessive amounts of sediment,

2. No correlation was found between the milk containing excessive amount of sediment and that which reduced methylene blue in 20 minutes or less.

3. The data shows that much poor quality milk (that which reduced methylene blue in 20 minutes or less) is not detected by the sediment test.

4. The data also shows that much of the milk containing excessive amounts of sediment is not detected by the methylene blue test.

5. If it is agreed that dirty milk should not be accepted, and that milk of such poor sanitary quality that it reduced methylene blue in 20 minutes or less should not be accepted, then it is evident that neither the sediment test nor the methylene blue test, when used alone, is entirely effective in determining whether milk should be accepted.

6. The routine use of both the sediment test and the methylene blue or some similar quality test would be very helpful in a milk grading program in those areas where milk is being produced for the manufacture of butter, cheese, and evaporated milk, milk powder and other products. The use of some other quality test along with the sediment test in those areas is strongly recommended.

Presented before the Idaho Milk Processors' Association, Boise, Idaho, December 18, 1948.

REFERENCES

1. Federal Food, Drug and Cosmetic Act and General Regulation of Its Enforcement; S.R.A.F.D.C.; Rev. 2; Revised issue July, 1946; U. S. Printing Office, Superintendent of Documents, Washington, D. C.

2. Standard Methods for the Examination of Dairy Products, Eighth Edition, published by the American Public Health Association, 1941.

3. The Grading of Non-Fat Dry Milk Solids and Sanitary Quality Standards, Bulletin 911, published by the American Dry Milk Institute, Inc., 1948.

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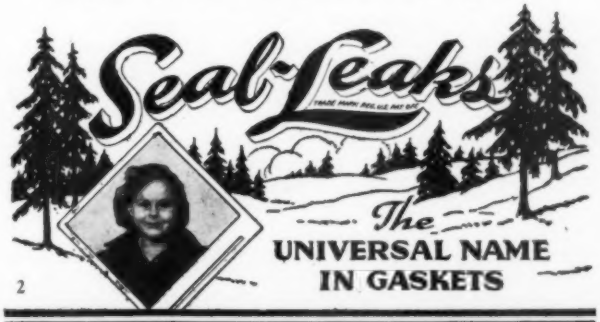

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BEAVERITE PRODUCTS, INC.
Beaver Falls, New York, U·S·A·

FLUID MILK SALES IN 1949

Dairymen Must Roll Out the Big Guns of Quality and Efficiency if They Look for Success in the Market Place During the Coming Year

By **FRANK F. RENNIE**

President, Virginia Dairy Company

THERE WILL BE plenty of milk for most fluid markets in 1949. On the basis of official and unofficial reports only a fighting war, a calamity to dairy cattle, or a severe crop failure will change the picture. Supplies will not be a problem. Where the milk will be sold and for what price will be a problem.

Quality will be the watchword during the coming year. The wise distributor, through understanding of, and cooperation with his producers, is encouraging a finer flavored milk, proper solids–not–fat, low bacteria counts, high vitamin content and maximum color. His laboratory facilities and field men will be constantly available in his program for an even better quality raw milk than ever before. Successful dealers know this program to be sound. Some complacent operators who think they do not need this type program, are likely to "wise up" to it in 1949.

After fool-proof pasteurization, processing and packaging, the wise dealer will check each grade and product daily to see that his customer receives a uniform food of consistently high quality, appealing in color, taste and palatability. This will apply not only to his regular and premium grades of fluid milk, but to each of his specials, or by-products. In other words, the smart dealer will continue to accentuate his sound dairy knowledge, his good practices, the virtues of his product, the findings of nutritionists, his unique functions in the Nation's economy, his contribution to its welfare; in fact, he will continue to emphasize and do all these things he knows to be sound and constructive. This type of positive program *should maintain consumption at present levels, even increase it* . . . but will it? Should we consider other factors which might aid in increasing sales? To overlook them may retard sales and in some cases, may definitely curtail them.

Old Equipment Is a Millstone

First of all, we might just as well realize that it is inefficient and wasteful to process and package milk and dairy products with outmoded equipment: Machinery and Supply men have constantly improved their equipment in order that milk dealers might put out an improved product more efficiently and economically. From the standpoint of new, original design and innovations, there is little to report other than the refinements we saw at the Atlantic City Dairy Show. I would say that some Homogenizers, Bottle Washers, Pumps, Valves and control instruments have been greatly improved. Recently I have seen a flexible Conveyor which might get around some corners, or cut some, in the milk plant. Of course, you know of the improved Phosphataze Test which provides a most accurate test of the effectiveness of the pasteurizing process. When one considers carefully the domestic and foreign pictures, population trends and spendable incomes, coupled with the breadth of our potential market, I believe that now is the time to buy all needed equipment. We should not forget that should full mobilization for defense or war be inaugurated, the Dairy Industry will be allotted only 30% of the steel required for normal operations. Reasonable delivery is assured now. Prompt, positive action is indicated. Every drop of Milk should be utilized to the best advantage, and every man hour be made as productive as possible if we expect to maintain profits and to forge ahead with sales this year.

What of the problems we see or think we see–present and future? Are they major or minor in scope? Will they disturb or disrupt the positive program so desired by far-sighted, progressive distributors? I will mention a few, as I see them, and you may weigh their importance in relation to increased sales, profits and goodwill.

Price Is a Major Problem

One of the outstanding distributors in the United States tells me that he believes our general, perhaps major, problem this year will have its origin in price. In anticipating adjustments, he states that, "Milk prices (seasonably) stood at a peak in mid-summer of 1948. At that time they were about 25% higher than the general level of prices. Manufactured dairy products all receded in price during the last six months of last year. These are the basic products of our industry, reflecting the readjustment first. Their prices are now about in line with the level of general prices. Fluid prices have not as yet reflected this readjustment in any wide or substantial way, particularly is this true in the Eastern and Southern markets. Some North-Eastern markets are down one cent per quart in January." He goes on to mention the favorable factors in the cost of milk production and believes that some adjustment can be made in farmer price without placing undue hardship upon him, yet giving some relief to the consumer.

Now the producers, naturally, may emphasize the present unfavorable production costs when price is considered. Secretary of Agriculture Brannan, in a recent address, said in part that he does not think the national economy has to be adjusted downward from present high levels, but that "if the downward adjustment comes, we are not this time going to start the process with the farmer. If the constricting does not start with the farmer, it may not get started at all. Stable farm prices and stable farm income will go a long way toward stabilizing the whole economy."

Herbert L. Forrest, Assistant Director of the Dairy Branch, U. S. Dept. of Agriculture, voiced opinion from the fields of markets under Federal License. Said he, "The purpose of the price fixing program of the federal government is to bring a certain degree of stability into fluid milk markets. Because this is the purpose, we must not attempt to reflect in fluid milk markets the instability that has characterized the manufactured dairy products markets and particularly the butter market. It is necessary for us to determine insofar as possible the more permanent changes."

Some State Milk Control Agencies are already in the "dog house", their official actions and prices being condemned by thousands of consumers and tested in the Courts.

In my opinion, a majority of the milk

consumers are expecting some adjustment in prices now or in the near future. No responsible distributor desires a radical drop in prices, or even an adjustment that might precipitate a disruption of a stable market. He wants to be in line, rather than to be a party to pricing his product out of the market. Shall this product be treated in a negative way or in a positive manner? Shall it become a political football kicked around in the muck of prejudice and misinformation, or through education and cooperation between all groups be made a stepping stone to increased sales and goodwill, now and for the long pull ahead?

Must Get Out and Sell

Another problem in many markets is the lackadaisical attitude of route men to the importance of seeing new prospects and selling present customers more milk. This state of mind is a hang-over from the war period when the route man was riding high, wide and handsome on a seller's market. Many are gradually losing volume and yet it is difficult to make them realize that they are now operating in a buyer's market, with an abundance of attractive competitive foods trying to get a larger share of Mrs. Consumer's food dollar. The new Milk Industry Foundation "Balanced Job" manuals and "Sales-Cast Training Programs" are the latest and best aids to making salesmen out of war-time delivery boys. Alert distributors who are confronted with this problem, will put these training aids to work and find some way to get interest and attendance at Sales meetings; see that attractive instruction is given and follow through to see that the man on the route is really trying to sell.

The problem in some markets of maintaining every-other-day delivery on a fair and equitable basis to all customers is indeed a perplexing one. I believe that many competitors do not hesitate to undermine and belittle the soundness of every-other-day delivery in their mad desire to add a few new customers here and there. Every-other-day delivery of milk is a single most important adjustment for lower distribution costs of milk in years. That is not only the opinion of our industry but it is also the published opinion of the U. S. Department of Agriculture. How then can we hope to keep distribution costs down and customers happy when there are some who persist in trying to woo new business with every-day delivery? Have you a solution?

What about the distributor who takes a free ride on the educational and sales promotional train of the N.D.C., the A.D.A., the M.I.F., and also his colleague's local food value and educational programs. The fellow who spends part of his so-called advertising money buying prospects, giving free samples, and cutting in on every-other-day delivery customers? Do such practices tend to increase overall consumption of milk and make more efficient and economical its home delivery? Certainly not. 1949 will be a good year to seek fuller cooperation from such problem distributors, to the end that their efforts will help increase overall consumption, rather than a mere swapping of customers.

Public Relations and Public Relations

Another hurdle for Milk Companies this year is intensified public information in capsules the public really likes, will swallow, digest, and utilize in a friendly way. In a new University of Indiana, School of Business study of milk distribution costs, it shows that approximately eighty-five cents ($0.85) of the dollar Milk Companies receive from customers goes out to pay for material costs, chief of which is raw milk bought from farmers, plus wages and salaries paid to labor and employees. All other Milk Company expenses must be paid out of the remainder, leaving only one and three-quarter cents out of dollar for net profits, or about one-third of a cent a quart. This is a lower net, Milk economists say, than in any other major industry. Problems of public relations and economics seem more important today than those pertaining to plant and equipment. At least we have the feeling that our research among customers still shows that they do not understand the low profit on which our industry must operate. Further studies have shown that customers can easily be misled by any ambitious politician who tries to blame the milk distributing industry for the inflationary conditions which are absolutely beyond his control. Despite the fact that most consumers know that milk has gone up much less than other major foods, it always sounds good when someone says you should be able to buy milk at much lower prices, without bringing in the fact that farm costs, wage rates, equipment costs and everything else in the operation of a milk business today, are sky high, compared to pre-war days. Is this a riddle? An honest effort has been made to present the true facts. A better job must be done. If it is, I am sure more people would buy more milk.

New Products Not Startling

These things help to make the milk business the facinating thing it is, but just take a look in another direction for awhile. I have made a spot check around the Nation seeking information on new products. Frankly, there is nothing startling to report. What's new in one market may be old in another. For example, one man reports that he is now beginning to push. Homogenized Milk and thinks more stress should be laid on it. Others, to their joy, satisfaction and foresight, did that many years ago, and profitably, too.

A few items that might be new are, "Quick Whip", "Half and Half", "V-F Milk, and "Vita-Skim Milk". You know of "Quick Whip" and "Half and Half". The "V-F" (Milk) stands for Vitamized - Fat-free; "Vita-Skim" the same by another name. Both products are designed to sell at a lower price than regular milk and to appeal to people who think standard milk is fattening, and present prices thinning. They are fortified with Vitamin "D", extra Vitamin "A", extra solids and both are Homogenized. In one market this milk sells for eighteen cents ($0.18) a quart, while in another market, the distributor gets seventeen cents ($0.17). One market adds ¾ of 1% fat, also. I believe these items are significant, certainly for this group.

Milk Solids Non-Fat

Last year, Dr. Weckel, in speaking before the Winter Conference of the National Dairy Council, said that more attention should be paid to the solids-not-fat in milk, and that skim milk solids could be used to good advantage in many Dairy products.

In a recent interview with a high Dairy Official in the Department of Agriculture, it was interesting to hear his comments on Milk solids-not-fat. He said, "Forty million pounds of excess solids are to be sold this year. Growing children need the solids-not-fat – adults need it, too. Nutritionists are stressing this fact over and over. Prices on whole fluid milk are reaching the border line. In consumer acceptance tests on Homogenized whole milk of 4% fat content, one-third objected to the flavor. So we extended the test. We increased the solids in ordinary skim milk and added 1% fat. The consumer acceptance was good. Two percent fat content was tried and the acceptance was fair. Three percent fat content resulted in poor acceptance; and as stated previously, actually one-third of those tested on 4% fat objected to the flavor. All this milk was Homogenized."

This Official goes on to say that the present fat in fluid milk should be spread out over more people – adults, as well as children. He suggests a two and one-half percent butterfat, Homogenized Milk at a lower price. If State and municipal authorities objected, we should try to change the laws to allow it. This frank statement may prompt criticism from some producers and distributors, but who knows but what the trend has not actually gotten under way, certainly with enrich-

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ed solids and Vitamin "A" and "D" Skim Milks.

If any sizeable segment of our population continues to think that milk prices are too high; if low income groups are persuaded that regular milk is not a bargain; if more children and adults need additional milk solids, what shall we do about these two new products? If aggressively promoted and sold, what effect will it have on the sale of regular milk? Will the returns to the farmer be more satisfactory than if it were manufactured into powdered or condensed milk? Can we ever expect any great volume on this type of milk? It is my belief that these and other factors merit most careful consideration.

There Is a Battle Ahead

Who knows but what these and other milk products are more universally used than we expect and that we may ultimately see many new types of flavored milk at prices which will appeal to a larger portion of the population? The fact that we are still maintaining per capita consumption in this country around 15% above pre-war levels shows that our industry has done a good job. We hope to maintain this higher level of per capita consumption; and there is no group of people in the country more aware of the importance of maintaining this level than the audience we have here today. However, we might ponder the following quotation to advantage. It is from TRENDS, published by Press Association, Inc., "Obscurely buried in most accounts of 1948 trends is this fact: In the U. S., per capita consumption of daily products decreased from 792 pounds to 768 pounds, reflecting more widespread consumer use of Margarine. Consumption of fats and oils other than butter, increased by 52 million pounds to a total more than 800 million pounds greater than in 1939."

It will take huge volumes of fortified skim milk containing 1% fat to regain losses to other fats and oils. But who would say it can't be done, with a palatable, approved product of high food value at a relatively low cost? It is a challenging and intriguing thought if you believe that prosperity follows the Dairy Cow . . . you should believe it. "Of the 10 states with a rural level of living index of over 125 (U.S. average equals 100), seven (7) derived their principal source of farm income from dairying; and the *five states* (5) with the highest rural level of living were *Dairy States.*"

Sorry that I cannot report something new in the packaging line available to all at this time. The only thing of interest is the new Seal-King paper container, used only by Bowman Dairy, of Chicago. They report that this container is almost leak-proof and far superior to any paper bottle on the market. They are made of plastic treated paper and do not use paraffin. Also, there is a new plastic container for Cottage Cheese which is meeting with favor wherever used.

In closing, I would like to review once more those points which I believe will best increase fluid milk sales in 1949:

1. By accentuating the positive.
2. By modernizing and economizing to utilize every drop of milk and every man hour efficiently and profitably.
3. By anticipating, recognizing and resolving problems before they adversely affect sales, profits and goodwill.
4. By engaging in research individually, or by assisting, supporting and contributing financially to joint research by others.
5. By developing, accepting and adopting new products and new packaging, when such products are inherently sound and profitable to Producer, Consumer and Distributor.
6. By being alert to all trends, particularly those which influence the consumer's food dollar.

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GUILFORD DAIRY

(Continued from Page 22)

night, is a particularly heavy night at the ice cream bar. The local team makes a habit of dropping in after a game and stoking up on milk shakes and ice cream.

Not showing in our tour of the plant but, nevertheless, an important part of the Guilford Co-op's activity was the employee recreation center that is maintained at a nearby lake. The "center" is a picturesque structure built out of logs. There is a large porch and a comfortable lounge with a fire place. The place is surrounded with pines and the lake offers swimming and boating. Picnics and gatherings for employees, patrons, and other groups in the community keep the lodge busy during the recreation season.

The Land and the Future

This whole business of superb plant, employee welfare, community use of facilities, and planning for the future builds up into a solid bit of philosophy. Greensboro and Winston-Salem are in the tobacco country. Tobacco has made fortunes for many people in that section of the State but it is hard on the land. Erosion is a real problem. As Mr. Kiser said to us, the dairy industry offers one of the great hopes for restoring the land. There is a great deal of missionary work to be done. As milk handlers in other sections of the country have learned, when relatively easy money can be made in other forms of agriculture, farmers are inclined to forget milk and cows. Much of the milk consumed in Winston-Salem comes from Virginia and some of it from Pennsylvania. The Guilford Co-op for example has eighty-eight patrons. While the number may appear small to dairymen from other parts of the country it is well to remember their magnificent plant was built with another day in mind.

What we are trying to say is that responsible leaders in the North Carolina dairy industry, men like Paul Landreth of Southern Dairies in Winston-Salem, V. J. Ashbaugh in Durham, Professor Hilton of the University of North Carolina, and Mr. Kiser have seen the vision of a strong, healthy dairy industry in their state. Possibly you remember last month's "Trip" where we mentioned that wonderful green grass we saw growing in the middle of the winter down there in the Tarheel State. The natural environment and soil are there. It is a problem of education and public relations. It was on that score that we were so impressed with what the Guilford Co-op means. We saw far more than a magnificent new building. We saw an organization that was bringing the community into its orbit; that was building both its physical plant and its human relations, public, employee, patron, with an eye firmly fixed on what is to be rather than what is. We saw, above everything else, what effective leadership can mean to an industry. It wouldn't surprise us one little bit if those boys down there got exactly what they are shooting for, and that, just in case it has escaped your attention, is a two hundred million dollar dairy industry. You watch. Those folks are playing ball.

SCHOOLS USE ORANGE DRINK

Deliveries of latest allocations of concentrated orange juice and American process cheese are now being made by the U. S. Department of Agriculture to Northeastern States for use in school lunch programs.

The partial allocation of orange juice concentrate now being distributed totals 27,344 cases, twelve 46-ounce cans to the case, according to J. J. Dittrick, in charge of food distribution programs for the Production and Marketing Administration in the Northeast.

The cheese allocation totals 36,250 cases, six 5-pound loaves per case.

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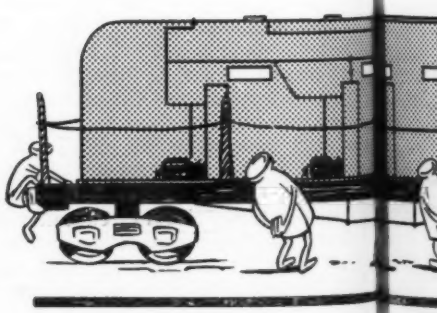
A BOTTLE WASHER I

ONE OF THE most important and often over-looked phases of public relations is employee relations. Happy indeed is the concern that moves in an atmosphere of pride in achievement both individually and collectively.

Loyalty is a characteristic of homo sapiens that responds to cultivation but deteriorates into disillusionment with neglect. People like to be associated with an enterprise that is sound, that has a reputation. When questioned regarding their place of employment, most men like to be able to name some reputable concern because they enjoy a certain prestige by virtue of their association with such an enterprise. No one likes to work for a second rate outfit.

What is the yard-stick by which employees measure their company? Size is one. "I work for such and such a concern. They're the largest manufacturers of so and so in the country." Another measure that employees often use is fame of product. The product name is associated with excellence and the employee assumes some of that prestige because of his connection with the firm. Still other standards are equipment, condition of the plant, and the nature of superiors. Finally the reputation of the company as a fair employer, a concern that pays well, provides adequate sick benefits, has a good pension plan, reasonable vacations, and similar considerations is looked upon as a good place to work. The man who can say that he works for such a concern generally says it with pride.

One of the most effective methods of developing loyalty is to keep employees informed of what is going on in the organization. Conversely one of the surest ways of generating antagonism is for employees to

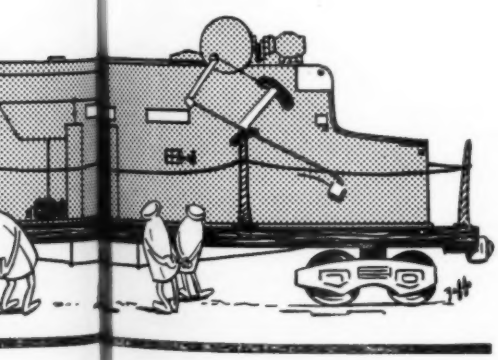


IS WELCOMED HOME

learn of something that concerns them through a third party outside of the company. "Geez, ya hafta read the newspapers to find out what goes on in the joint," is a sad commentary on employee relationships. Why should a man entertain any particular loyalty to an employer who considers any Tom, Dick, or Harry who reads the "paper" more important than the people who work for him?

On these pages we have reproduced a series of cartoons with which Sheffield Farms, through the company magazine *Sheffield News*, told employees about the purchase of a new bottle washer. Accompanying the drawings was a story that gave the employees an idea of the investment that the new equipment involved and the work that it would accomplish. The story was so presented that an employee reading it could go home and report to his family that "we" bought a new bottle washer, that "our" bottle washer cost twenty thousand dollars. And don't think for a minute the people at Sheffield's did not feel a sense of ownership in the new machine. Ownership and pride go hand in hand and pride is the brother of loyalty.

The threads that bind men and women together into a working unit are many and varied. Money is considered to be the most predominent of these threads and probably it is. But one of the reasons why money is so important is because the other values such as recognition, security, loyalty, pride, are too often neglected. A man's time and his skill can be purchased but not his loyalty, that can only be earned. Conversely a man can sell his talents but he can only give his loyalty. It is strange isn't it that this invaluable ingredient in human relationships, beyond price in terms of dollars, can be had for a smile.



XUM

THE CORRESPONDENTS REPORT

MASSACHUSETTS

By JEFF STERNS

A NEWS ARTICLE this past month told of a new process which enabled milk to be preserved in cans and still contain the wholesomeness and taste of whole milk. A Valparaiso, Indiana firm made the announcement that they have succeeded in doing this.

In the announcement, widely circulated by the Associated Press, it was said that the process would not be ready for the general market until at least six months—and perhaps a year or more.

The day following this national news story, Jordan Marsh Company of Boston came out with the statement that they had ready to sell on their shelves, canned cream for household use.

The Jordan Marsh Company is one of New England's largest department stores. They claimed that twenty years of research had gone into the canning of cream and that they are the first to introduce canned cream in the United States.

The cream as sold by the Boston store is pasteurized and homogenized and contains 18 percent butter fat content. It is also claimed that the cream will keep fresh and sweet after being opened for several days.

The cream is of the heavy variety, i.e., heavier than ordinary light cream, and thus will result in a saving to the housewife.

Sales of the canned cream were reported as being better than average—whatever can be meant by that. At any rate sales could be put down as "good".

It seems that while Indiana strives to perfect the article, New England steps ahead and markets the product for general consumption.

Interviews with New Bedford people who do shopping in the metropolitan area and had purchased some of the cream resulted in a mixed acceptance of canned cream. It was divided about 50-50 as to the liking of it.

Some said it was easier and better to handle than bottled cream while others remarked that the "canned taste" was still there and that they still preferred to have their milkman deliver their cream on the back doorstep as has been the custom.

One woman replied, when asked what she thought of buying canned milk or cream, "Did you ever taste preserves put up by your mother? Did the berries of fruits ever taste like the fresh ones?" We shook our head at this.

"Then you can see that preserved milk or cream will never take the place of farm fresh deliveries," she said. And that seemed to just about sum up the general view of the housewife in this section.

●

TEXAS

By JIM TAGGART

A BRIGHT FUTURE was predicted during a panel of eight extemporaneous speakers at the February 28 meeting of the forty-first annual convention of the Dairy Products Institute of Texas at Hotel Adolphus, held February 27 through March 1. According to Lindsey Waters, Jr., vice-president of Tennessee Dairies, Dallas, who spoke of the North Texas area, the future milk production looks good because of better pastures. Although he did not state figures, Mr. Waters attributes the bright future to the greater interest among farmers in North Texas in dairying; he said that revenue in other branches of farming is dropping off and farm labor is still bad. He said there has been an increase in the number of cows and that artificial breeding in this part of the country has contributed immeasurably to the present milk supply.

A report from Tulsa showed a 20% increase in dairy production over last year. From Kansas came the statement that milk production in that state is up 30%. Consumers there are reported as being "choicy over the grade of milk and that although Grade C milk is up over last year, there is a 50% larger demand for Grade A."

Bernard Studdert, Lone Star Creamery, Houston, presided at all sessions during the three-day meeting in Dallas.

Joe Ridgeway, The Borden Company, San Antonio, stated that his business is 25% ahead of last year, and the bright future may develop into a 40% increase. He would not be at all surprised if there is a milk surplus during the summer. He said that pastures in South Central Texas are above normal and there has been abundant rain in his section of the state.

At the March 1 meeting a measure was introduced to send a proposal to the Legislature to set up a state board of dairying. O. D. Dillingham of Abilene, chairman of the group's legislative committee, put the proposal before the delegates.

Mr. Dillingham stated the proposal would come before the Legislature within a few days and he could see no objections which would prevent its passage.

The institute recommends, in the proposal, a board of eight members, all appointed by the Governor. Two would be the heads of agricultural departments at Texas A & M and Texas Tech. Another member would be the state health officer. A fourth member would represent the public. The others would represent fluid milk distributors, ice cream manufacturers, dairy product processors and milk producers.

L. A. Boswell of Ft. Worth was elected president of the Institute, replacing Bernard Studdert, Houston. John R. Richards of Harlingen was elected vice-president. Re-elected were John D. Simpson of Austin, vice-president, and Lester L. Levy of Waco, secretary-treasurer.

• • •

The first of a series of Employer-Employee Relations Conferences sponsored by the Dairy Products Institute of Texas was held in Waco, in mid-February. The conference was a one-day meeting conducted in the form of a round-table led by Hugo Swann, head of the Institute, and Warren Gibson, his assistant. Twenty-five leading figures in the milk industry of Texas attended—

five more than the desired 20 which is supposed to be the limit for free discussion.

The conference was based on the topic: "What the Employees Want," in regard to wages, working conditions and number of working hours. The meeting also discussed the statistical analysis of what the employee is getting at present. Mr. Swann, during the meeting, presented a statistical analysis of union contracts which are held by North Texas dairies with their employees along with the forecasts of the Institute regarding union contracts. The program included among other things an analysis of laws affecting labor, both state and national.

To fully dramatize the day's discussions, the conference used colored sound films to get its message across. Employee and employer tests were also explained with check charts for employers to determine their own abilities as managers.

Three hundred dairymen from 14 Texas counties met at Weatherford, (Parker County) Texas, March 8, to seek an emergency solution to their problem of supplying milk to Dallas, their principle market. C. O. Norton, president of the Parker County Dairy Association, was the spokesman and set the theme for the gathering as he explained that a slipping milk market caught scores of dairymen in a tightening price-cost squeeze.

"The price paid producers now is around $5.60 per hundredweight, 4 per cent butterfat basis," Norton stated. "That's $1 to $1.30 less than just a month ago. And production costs are as high as ever."

Norton said many dairymen realize the price of milk must come down, but said many Dallas area producers had been "oversold" by the distributors on opening new dairies. He said, too, that the price cuts this year came two months too soon. He said the price cuts followed lowering of retail prices in Dallas, but he charged that not all the cut given the producer has been passed along to the consumer.

(In commenting on the retail cut, Lindsey Waters, Jr., vice-president Tennessee Dairies, said the recent cut came early because the greater supply of milk showed up earlier than usual this year.)

Parker County Agricultural Agent J. O. Woodman estimated his county's loss of income since the price cuts at "more than $125,000 a month."

Norton and Woodman were both concerned about a report that Dallas would declare a surplus by the middle of March.

Only one distributor's representative attended the gathering. H. E. Hartfelder, vice-president of Oak Farms, Dallas, explained the situation by stating that after five years, milk production in the Dallas area had at last caught up with consumption. Too, sales are off about 25% or more due to dropping wage incomes. He confirmed the report of the declaration of a milk surplus to the extent that, in his opinion, it would be declared.

Hartfelder said the big dairies had rather not buy surplus milk at surplus prices. "What we want is a 12-month supply of milk tied to a 12-month sales demand."

Dr. J. W. Bass, city health officer, said he was recently visited by a group of Parker County dairymen. (Parker County supplies Dallas with the largest supply from any one county.) When asked for comment, Dr. Bass said:

"I am not going to suggest anything on the commercial side of the milk business. I am concerned only with seeing that Dallas gets a good supply of the right kind of milk."

Dr. Bass said, further, the number of producers in the Dallas milkshed increased from 860 to 1182 during 1947 and 1948, and now very little out-of-state milk is being hauled into Dallas.

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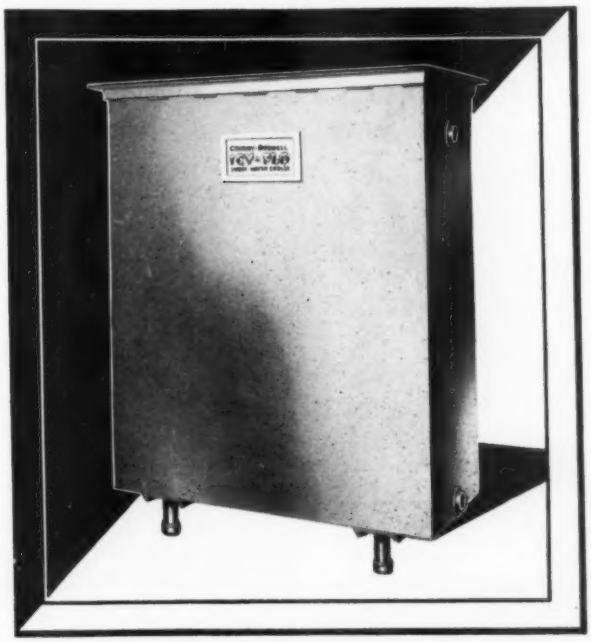
Icy-Flo

sweet water cooler
stores ice during "off peak" periods



The Icy-Flo system of making uniform temperature sweet cooling water requires only a 1 h.p. ice machine and is only 1/7 the size of same capacity brine tanks. It's small and compact, self-contained for easy floor mounting.

Icy-Flo cuts the cost of electricity by enabling you to build large ice banks during "off peak" load periods. And this automatically controlled sweet water cooler prevents "freeze-on" . . . cannot flavor-contaminate your products. Small compressors using Freon or methyl chloride may be used, or your present ammonia system can be utilized.

Icy-Flo is designed to help you save milk, man-hours and money. Ask your Cherry-Burrell representative about this money-saving, space-saving sweet water cooler soon!

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"It is apparent," he stated, "that Dallas soon will have more fluid milk than can be consumed. More cows will be freshening and good weather will mean lots of good grass—and 300 new dairies since 1946 are going to make a lot of difference."

•

GEORGIA

By BILL HARRELL

THE GEORGIA Legislature has passed a bill reorganizing the State Milk Control Board and strengthening its powers to control milk prices and quotas.

The legislation reduces board membership from eight to five and abolishes the post of director, whose duties in the future will be performed by the Chairman of the Board.

Gov. Herman Talmadge approved the bill and swore in the following board members:

Charles G. Duncan, former director of the board, as chairman; the Rev. Augustus Ernest, Monticello, consumer member; George A. Sancken, Augusta, dealer; Mrs. H. P. Russell, Sr., Thomasville, producer-distributor; W. P. Wallis, Eatonton, producer.

Directors of Foremost Dairies, Inc. and Maxson Food Systems, Inc. have approved a proposed merger of the two firms and will submit it to their stockholders March 14.

If approved, the combined company would be known as Foremost Dairies, Inc.

Krim-Ko, a new chocolate milk drink, is being manufactured, bottled and distributed by Brownlee & Lively Dairy Farm in Atlanta. It retails at 22 cents per quart.

The Georgia Senate's Agricultural committee has approved for passage a bill to establish a five-member State Livestock Sanitary Board for enforcing laws affecting dairy and dairy products; livestock, poultry, meat and meat products.

Members of the board would represent dairy cattle producers, hog producers, beef cattle producers and poultry producers. The fifth would be the Commissioner of Agriculture, who would act as chairman. Among aims of the bill are enforcement of quarantine and livestock laws and appointment of a state veterinarian.

Will A. Foster, Vice-President of the Borden Cheese Company of New York City, predicted his company will consider starting a cheese factory in Georgia when the dairy industry here produces enough milk to provide the factory with 8,000 to 10,000 pounds of milk daily.

Here to inspect his company's new Atlanta warehouse, Foster said Georgia still has to import part of its milk. He said the state faces a golden opportunity to expand its dairy industry because of its favorable soil, climate, abundance of electric power, increasing population and new wealth through diversified economy.

Figures released by the Milk Industry Foundation in New York show Georgia's milk industry as one of the top businesses in the state. A total value of $37,130,000 was set on Georgia's 360,000 milk cows which produced 559,000,000 quarts of milk in 1947. Production per cow was 1,553 quarts. Georgia dairy farmers received $28,907,000 in cash income. Ice cream production was estimated at 5,855,000 gallons.

Fifteen ex-GI's in a Greene County on-the-farm training class are grossing approximately $7,000 monthly from almost 12,000 gallons of milk they are sending to markets in Atlanta and Washington. The students, under leadership of Teacher Arthur Stewart, have 184 cows, 81 heifers and six registered bulls. They have improved 298 acres of permanent pasture by seeding and fertilizing.

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Take The Guesswork Out of Production

Last Fall they seeded 194 acres of winter grazing crops. Six have built new dairy barns.

One-day tours to study phases of winter grazing are being held during February in each of the six Georgia Agricultural Extension Service districts.

●

CALIFORNIA

By PETER FABRICIUS

THE REPEATED cold spells that have hit the West Coast this year, have posed a number of serious problems for the dairymen, and possibly will have a direct effect on the price of milk. During the last two weeks in January alone, the price of hay went up $2.50 to $36 in the San Francisco area and to $35 in Los Angeles. The single main reason for that rise in price was the fact that many dairymen whose pastures were snowed under in unusual spells of cold weather, had to buy hay. West Coast dairy people point out, however, that even under normal weather conditions hay was bound to go up as California alone had an increase of 14 per cent of beef animals since last year, and that hay consumption jumped accordingly.

As a result of these unusual feed conditions the market outlook for milk and milk products is uncertain. Usually, at this time of the year, milk production costs in California decline, and Grade A market milk drops at least one cent a quart. This year, the Bureau of Milk Control which determines price adjustments after hearings with producers and resale men, has postponed these hearings until the middle of March. At that time, it is felt among California's dairy men, more will be known about pasture conditions, hay prices, to make a general agreement possible then. W. D. Woodburn, chief of the Bureau of Milk Control, is still optimistic that the price of Grade A milk will go down a cent this spring, although a little later than usual. He reasons that after the first cutting, hay will drop to normal price levels, and if the West Coast will get rain between now and June, milk production will be normal once more.

Among those who passed away this month in California are Paul J. Messer, 51, secretary of the Pacific States, Butter, Egg, Cheese and Poultry Association who died of a heart attack in Los Angeles . . . Roy V. Green, 52, prominent and widely known retail dairyman of Southern California, passed away in Orange, California . . . Jack Francis, 58, of the Francis Steam Generator Company of Bellflower, California, nationally known for his generators which he sold through the various dairy supply stores on the West and even on the East Coast.

Personalia: S. C. Hookstratten, former owner of a Whittier ice cream company, was elected President of the Dairy Industry Committee of Southern California. Newly elected officials of the California Dairy Industry Association are: President E. L. Scaramella, of Krafts Foods Company, San Francisco; Vice-President George Morton of Los Angeles; reelected as secretary-treasurer was Professor Helge Shipstead of the University of California, division of dairy industry.

Reports received from Phoenix, Arizona, indicate that about 27 million cwt of milk was produced in that state in 1948, and that the supply of retail milk and cream is plentiful at the present. An analysis of the situation shows that the good supply had two main causes—a shift to Grade A milk by many dairymen, and the heavy feeding of grain and hay. Prices are high, but profits are not accordingly so because most dairymen had to buy more hay than usual and had little or no green pasture. Greater profits and savings in water prompted many farmers to convert alfalfa acreage to cotton, vegetables and grain.

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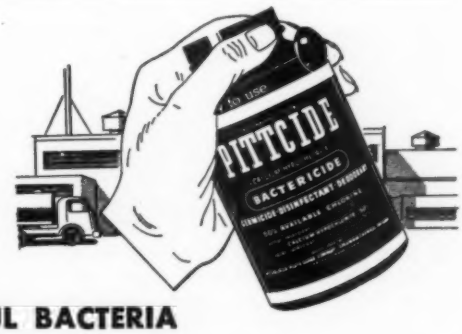

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PACKAGED ICE CREAM

The Marketing of Packaged Ice Cream as a Standard Food Item, Rather than a Premium-priced, Specialty or Confection, Is Being Pioneered in the Los Angeles Market by Valleymaid Creameries

BY DELIVERING ice cream on a strictly pre-packaged, drop-shipment basis . . . at the same time and off the same truck as other frozen foods . . . Valleymaid Creameries, Los Angeles, a division of Creameries of America, Inc., have introduced new efficiency and tremendous savings into the ordering and delivering of ice cream.

At the same time, they have eliminated the old monthly-volume-discount system of pricing ice cream, under which the grocer's buying price fluctuated with the season. The new prices are based on the volume delivered on any one order. Thus, the grocer knows his price in advance and can mark up his ice cream on a fixed profit margin.

The new plan . . . called the "One-Stop-Saver" plan . . . completes the transformation of ice cream from a confection to a standard food item, and is looked upon by many as the most important development in the ice cream industry since the factory-filled carton.

"Despite expensive store-door, wagon-delivery methods, ice cream has become one of the top-volume items in most grocery stores," said W. T. Cannon, Jr., Vice-President and Southern California Division Manager of Creameries of America, Inc. "There is no longer any reason why it should not be handled like other big volume grocery items.

"We are simply meeting today's need for fast, efficient, economical delivery of packaged ice cream. After all, the food industry is primarily a matter of transportation and a big part of the selling price is the cost of getting the product from where it's produced to where the housewife puts it into her shopping bag.

"By combining ice cream with other frozen-food deliveries, by filling our trucks to capacity with pre-packaged orders and returning them to the plant 100% empty, by making fast drop-shipment, instead of time-wasting store-door calls, we are stepping up the efficiency and reducing the cost of marketing ice cream."

WHAT'S SO FUNNY?

Starting with the May issue the *Review* will include a page called "What's So Funny". Humorous stories, anecdotes, and jokes about the dairy industry will find their home on this page.

We've got some dillys but perhaps yours are better. $1.00 goes to the author of any story we publish.

Address "What's So Funny" Editor, *American Milk Review*, 92 Warren St., New York 7, N. Y.

Before launching the new delivery and pricing system, the creamery conducted a series of interviews with store owners and managers. The found that a large majority of market operators favored the plan. In fact, many wondered why it hadn't been done long before.

The real proof of the soundness of the plan, however, came in the form of the scores of new accounts which signed up for the drop-shipment of both ice cream and frozen foods. After the first month of operation, a large proportion of the company's ice cream volume was going out with other frozen foods on the drop-shipment routes.

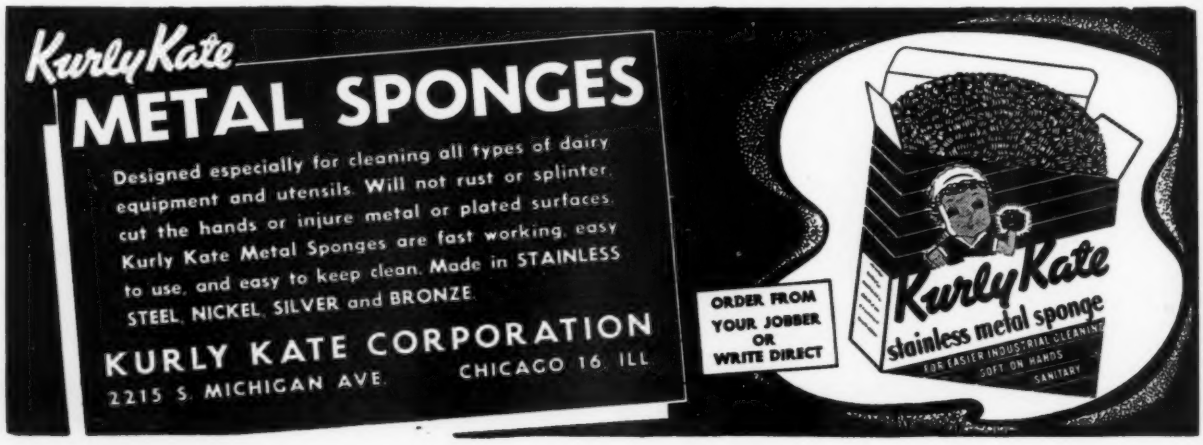
In order to get the reduced price on the ice cream, the grocer must do three things:

1. Telephone his ice cream order the day prior to delivery.
2. Take a minimum of 5 gallons of ice cream on one delivery.
3. Handle ice cream, just like other frozen foods, on a drop-shipment basis, with store personnel placing the merchandise in display or storage cabinets.

The first price schedule under the new plan, based on anticipated savings in delivery costs, was as follows:

5 to 20 gallons.....1.52 per gallon
11 to 20 gallons.....1.49 per gallon
21 to 50 gallons.....1.47 per gallon
51 to 100 gallons.....1.45 per gallon
101 gallons or more.....1.44 per gallon

Due to the large volume of ice cream handled under the "One-Stop-Saver" plan, the company was able, after the first week, to reduce the price on the minimum delivery an additional 4 cents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Designed especially for cleaning all types of dairy equipment and utensils. Will not rust or splinter, cut the hands or injure metal or plated surfaces. Kurly Kate Metal Sponges are fast working, easy to use, and easy to keep clean. Made in STAINLESS STEEL, NICKEL, SILVER and BRONZE
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SOFT ON HANDS
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per gallon, with proportionate reductions on larger orders.

"We don't know yet just what our handling costs will be eventually," said Cannon, "but it is our intention to pass along the entire saving in our wholesale price and encourage stores to pass it along to the consumer. Greater turnover and increased sales volume, which are bound to result from the pricing of ice cream as a staple food item, will mean more profitable use of every square foot of floor space devoted to ice cream."

Under the new price schedule, a grocer determines his price in advance by the size of his order. By taking the maximum delivery for which he has refrigerated display or storage space, he gets a lower price. His price does not vary with the seasons, as it did under the old monthly-volume discount system. During warm weather, when ice cream sales are heavy, he takes more frequent deliveries; when sales are lighter, he takes less frequent delivery. But his price remains the same as long as the size of the individual orders is the same.

With his buying price known in advance, he can mark-up his ice cream on a fixed margin of profit, like he does nearly all other items in his store. And he makes that margin of profit on every gallon sold, summer and winter. Formerly, ice cream made a nice profit in big-volume months, and was carried as a convenience the rest of the year.

"The factory-filled carton first made it possible for food stores to handle ice cream in volume on a self-service basis," said Cannon. "As more and more stores installed low-temperature equipment for other frozen foods, they took on ice cream, too.

●

SEPARATING CREAM

(Continued from Page 14)

called that the cream flows *under* top disc "E").

Figure 2 shows an enlarged view of the division of skim milk and cream between the discs. The cream, flowing across the upper surfaces of the disc, passes under the skim milk which flows down and outward on the under side of the disc.

From a study of the milk and cream flow several facts are evident:

(1) The cream flows as a solid stream in its passage through the bowl. This steady flow preserves the body of the cream, as the fat clusters are not broken up and the fat globules are not ruptured.

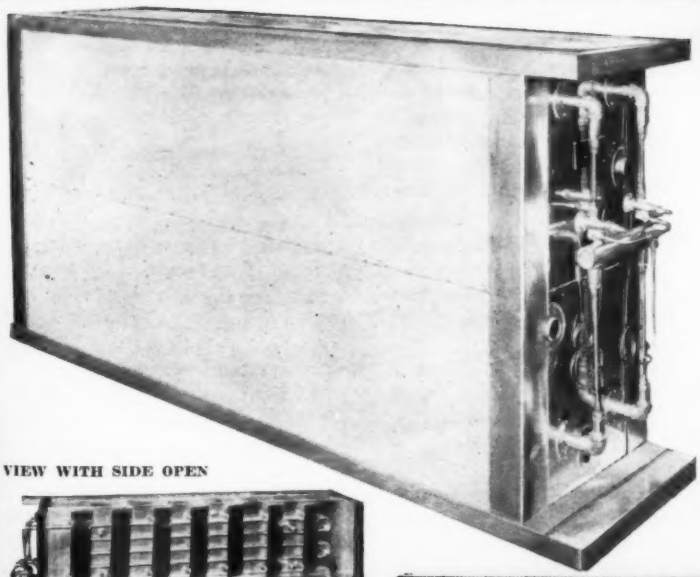
(2) Because relatively little centrifugal force is applied to the cream a separator cannot be used successfully to clarify whole milk. Sediment, especially cell bodies, that travel with the cream are not removed.

(3) Since all of the skim milk is subjected to the maximum centrifugal force (in the space "G"), sediment is removed from the skim milk. However, inasmuch as the skim milk washes the sediment accumulated against the slime wall, the skim milk cannot be considered as being completely clarified. Especially is this true when a large portion of "G" is filled with slime and the passage of the skim milk over the slime wall is rapid.

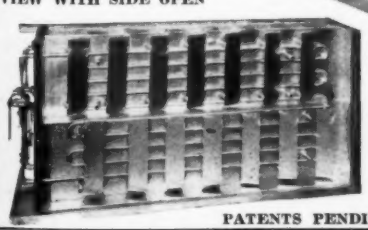
To summarize, the whole milk, spread in thin sheets between the discs, is subjected to a tremendous centrifugal force which separates the skim milk from the fat globules. The fat globules, as cream flow across the upper side of the discs toward the center of the bowl, where the cream gathers and flows out of the cream outlet at the top of the bowl.

The skim milk flows along the under side of each disc toward the outer part of the bowl where it flows upward between the edges of the discs and the bowl shell and over the top disc to the skim milk outlet. The separation and flow of each product is continuous as the incoming whole milk displaces and forces the cream and skim milk out of the bowl.

New CABINET TYPE "King Zeero" ICE BUILDER



VIEW WITH SIDE OPEN



PATENTS PENDING

Multi-Pass

- Uses Freon, Methyl Chloride or Ammonia as refrigerant.
- Low Refrigerant Content.
- Equipped with "E" type permanently fixed Louvres.
- Designed for Sweet Water and Brine Cooling Systems.
- Ice Holdover Capacity up to 11,250 pounds.

Write for Bulletin No. 95

THE KING ZEERO COMPANY
1447-55 Montrose Ave. Chicago 13, Ill.

Out of the Holding Tank

Beloit, Wisconsin

George Arnold, Beloit, who has served the Beloit local of the Pure Milk association for 18 years as first officer, was elected president of the organization to succeed himself at the annual meeting.

Elmer Krupke, South Beloit, was elected vice president to succeed Dr. C. E. Smith, Beloit, who was not a candidate for re-election. Ed. Hanewall, Beloit, was re-elected secretary-treasurer.

●

Watkins Glen, New York

Adelbert W. Baxter of Elmira has purchased the Millen's Dairy business of Watkins Glen.

Baxter was associated with El-Cor Dairies in Elmira for twenty-eight years before leaving there last July.

●

Delhi, New York

Wayland A. Fry has sold his Meredith Inn Dairy, Inc., to Woodrow Wilson of Nelson.

Meredith Inn Dairy, Inc., was formed in 1942, and distributes milk and milk products in Delhi, Sidney, Margaretville, Fleischmanns, and other surrounding territory.

●

Canajoharie, New York

The Canajoharie Co-operative Milk Producers, Inc., an independent milk station in Canajoharie, owned by local area dairymen, announced at its recent annual meeting plans for the building of a new milk plant to be constructed during the coming Summer.

The firm is now housed in a building of wooden construction, situated on the south bank of the Canajoharie Creek opposite Mill Street. It is planned to build the new 163 by 51 feet building adjacent and south of the present structure, thus enabling the firm to function during construction. The company was formerly the Bailey Creamery, and purchased by the local dairy farmers when the former owners decided to go out of business.

●

Eureka Springs, Arkansas

One of the new businesses locating in Carroll county during 1948 is the Alpine Milk Company, with its plant in Eureka Springs.

The plant, housed in a new 40x50-ft. concrete block and stucco building in Eureka Springs, was opened for business on June 10, 1948, by its owners, Victor and Francis Dietzel and Paul and Marie Smart. Mr. Dietzel for 15 years was associated with the Carnation Milk Company, while Mr. Smart was employed by the same company for 16 years.

●

Corry, Pennsylvania

The Model Dairy Company, Inc., which has operated since 1929, came into ownership of Omar Crowell with the sale of the interests of five other stockholders.

The transaction involved the sale of stock by Raleigh and Frank Van Tassell, Rex Warner, Mrs. Earl Pierce and Mrs. Hazel Brockman, all of this city.

●

Columbus, Ohio

How are dairy farmers going to win back the market for butter? Get people to eat more butter by spending $5,000,000 a year on advertising.

That was the recommendation of Roy Ricksham, merchandising director of the American Dairy Association, Chicago. He told the Dairy Technology Conference at Ohio State University the advertising campaign was needed to keep consumption of dairy products in line with production.

●

Staunton, Virginia

It is estimated that more than two thousand people attended the formal house-warming at the new Grade A milk plant of Staunton Creamery, Inc.

Dairy interests in various sections of the state sent representatives for the public showing of the new building and equipment, which represent an investment of more than $100,000.

Present for the occasion was C. L. Stahl, of Charlottesville, president of the corporation; Wesley C. Marsh, vice president and treasurer; S. Miley Dingledine, secretary, and Charles N. Clarkson, member of the board of directors.

Harrisburg, Pennsylvania

Lewis Williams, Uniontown, Fayette County, was elected to succeed Wilbur Barkdoll, Mont Alto, as president of the Pennsylvania Dairymen's Association.

Other officers are: Lee M. Poorbaugh, York, R. D. 3, vice-president; Charles E. Cowan, Lancaster, secretary-treasurer; Robert Eno, Honesdale, Wayne County, assistant secretary-treasurer; directors, K. S. Bagshaw, Hollidaysburg; Joseph C. Canby, Hulmsville; Samuel Meisenhelder, Dover, and S. B. Williams, Middletown.

The Association went on record as favoring continuation of the Pennsylvania Milk Control Commission.

●

Concord, California

Golden State Company Ltd. today added another milk distribution plant to its system. The new facility, representing a $40,000 investment, is in Concord, and brings to three the number of plants opened by the company in the last several months, according to Paul Young, president. The two others are in Santa Rosa and San Rafael. Young said plans are being made for other plants.

W. A. Reid is manager at the Concord operation, part of the company's East Bay district, managed by A. E. Schwatka.

●

Jacksonville, Florida

Acquisition of the business and assets of the Princesse Ice Cream Corporation, Jacksonville, by the Borden Company, has been announced by Milton Gelbman, former president of Princesse.

The Princesse Ice Cream Corporation, operating their new, modern plant, have manufactured and distributed ice cream in the greater Jacksonville area.

●

Manhattan, Kansas

Richard R. Ambrose, who owned one-half interest of the Chappell Creamery, oldest food processing establishment in Manhattan, recently purchased the remainder of the business from Kenneth R. Chappell, and is now the sole owner of the firm.

Mr. Ambrose is a cousin of Mr. Chappell, and is the son of Ray Ambrose of Norton, Kansas, veteran creamery operator there. Richard Ambrose came to Manhattan January 1, 1946, a short time after his discharge, as a first lieutenant pilot in the air corps. He purchased one-half interest in the creamery at that time.

Mr. Ambrose has announced that no changes in plant personnel nor in operating procedure are planned. He will continue to operate the business under the name of Chappell Creamery.

Columbus, Ohio

J. R. Bridenstine, manager and secretary-treasurer of the Central Ohio Co-Operative Milk Producers, Inc., heads the Ohio Milk Producers Federation, an organization of 22 major Ohio milk producer co-operatives.

He was elected president at the federation's annual meeting at the Ft. Hayes Hotel.

●

Latrobe, Pennsylvania

Marking the end of 24 years in business, the Smith Dairy, of Ligonier, began selling the output of its herd of cattle to a Johnstown dairy. The dairy recently had been operated by Mrs. Ralph Smith and son, Robert.

●

HOW SEPARATORS ARE MADE

(Continued from Page 8)

in perfect balance as it comes from the machine shop. When the bowls are whirling at their full 6000 RPMs the slightest error is magnified. It is necessary, however, for the bowl to balance perfectly if it is to stand up under the wear of everyday use. To bring the bowl into this perfect balance is the job of a specialist. He is called a "balancer". Some idea of the degree of skill demanded by this job can be gained from the fact that it takes just about a year to train a man to be a balancer.

The bowl assembly is mounted on a machine that is in essence a separator frame with a cutaway face. This machine turns the bowl up to 7000 RPMs. To an observer the rotating assembly has all the appearances of normalcy but, if the fingernails are placed againts the whirling spindle or the bowl, a slight vibration can be detected. The balancer places a soft crayon against the speeding surfaces and makes a series of marks which appear as solid rings. When the power is shut off and the bowl brought to a halt, what seemed to be solid rings show only on one side of the piece that was marked. These marks tell the balancer where the bowl is out of balance.

There are two schools of thought on balancing bowls. Some manufacturers favor adding a little weight to bring the bowl into balance others take some off. In either case the knowledge of what to add or take off and where to do it is the key to good balancing. Added weights are applied by melting the proper amount of metal in the bowl and then smoothing it over so that it fades into the rest of bowl's surface. In the take off operation a portion of the bowl is removed by grinding, generally on the outer surface.

From the foundry to the assembly floor the route of the separator part is a constant series of tests and inspections. Each part is inspected individually and when the separator is finally built on the assembly floor it is put on the test block and run for several hours as a final check. Indeed one of the impressive sights to be seen in a separator plant is the line of machines on the test block being put through their paces.

We hear a great deal about the necessity for quality these days. Quality begins on the farm is a popular slogan. But quality also begins in the machine shop and the foundry. Perhaps the strongest impression a dairyman gets as he travels through the factories where dairy plant equipment is produced is the realization that here as well as on the farm is a vital part of the dairy products team.

●

71 YEARS OF PROGRESS

(Continued from Page 18)

Dairyman made its debut as the first exclusively dairy farm paper. In upstate New York a druggist named Thatcher invented the glass milk bottle.

A dozen years after the advent of the first separator the employment of discs in cream separation was introduced. The use of discs, a vital part of separators today, revolutionized the design of separator bowls. Skimming efficiency was increased by the use of discs, separating capacity was doubled, and the cream was delivered in a smoother and better condition.

The Spanish-American War had just catapulted the United States into the status of world power when the split wing tubular shaft separator bowl became the latest refinement to be added to the design of separators. This consisted of projecting and slotting the wings of the central feed tube into the discs, which carried the incoming milk beyond the wall of separated cream and distributed it evenly between the discs. It made possible a complete separation of practically all butter-fat under the more difficult conditions of separation; such as cool milk, milk from cows in advanced lactation, and in running heavy cream.

When the red tide of the First World War receded improvements in dairy industry equipment and a vast demand for dairy products had elevated dairying to the position of a great industry. Mechanical milking machines had taken much of the drudgery out of farm chores. Agricultural schools had established departments devoted to research in milk and milk products as well as disseminating a growing body of knowledge on the subject. Refinements in separators continued to improve the efficiency and economy of the machines. Electric motors replaced the steam turbines and stainless steel took its place as one of the great boons in handling milk.

Today, after nearly three quarters of a century, the separator stands at the pinnacle of its development. Pressure sealed, built of non-corrosive steel, able to separate low temperature milk efficiently, exquisitely constructed, the machines are things of beauty as well as utility. With a history that coincides with the history of modern dairying separators are truly symbols of the science and skill that are the proud emblems of a great industry.

For preferred position in the 1949 edition of Who's Who in the Egg and Poultry Industries — make your space reservations now.

Rates on Request

URNER-BARRY COMPANY

92 WARREN STREET NEW YORK 7, N. Y.

Don't be satisfied with just any old chocolate . . . try

Quality First

Forbes

CHOCOLATE FLAVOR POWDERS

Used by quality conscious dairymen for 23 years.

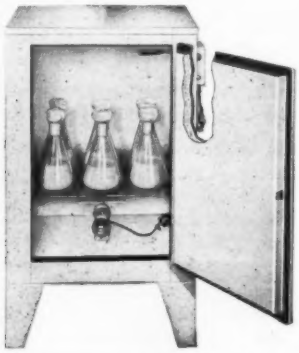
THE BENJAMIN P. FORBES COMPANY

2000 West 14th Street Cleveland 13, Ohio

USING OUR SEPARATOR • ITEMS OF INTEREST SKIMMED FROM HERE AND THERE

Culture Cabinet

CHR. HANSEN'S LABORATORY, INC., of 9015 West Maple St., Milwaukee 14, Wisconsin, announces a new culture cabinet for dairy products manufacturers. The cabinet is designed for cold room operation and is sturdy and durable in construction. It is equipped with an all metal thermo-regulator for



reliable temperature control. The heating unit consists of two electric light bulbs. The cabinet interior provides shelf space for six one liter flasks and is also high enough to accommodate a five gallon can. All hardware is rust resistant. Both interior and exterior is finished in white high baked enamel. Six packages of "Hansen's" liquid lactic ferment culture are included free with each cabinet. For complete details write to Chr. Hansen's Laboratory, Inc., 9015 West Maple St., Milwaukee 14, Wisconsin.

•

Floor Covering

ROCK-TRED Corporation, manufacturers of industrial flooring and other building maintenance items, has recently announced their new RESN-X Flooring, which, it is claimed, will remain unaffected by most acids, alkalis, oils, fats, syrups, etc.

The manufacturer describes RESN-X as a durable, but resilient heavy-duty resurfacer that can be easily brushed or troweled over any type of floor, concrete, wood, tile, metal, composition, etc., to a thickness of 1/32" to 1/16". It is non-slip and an electrical insulator.

In general, RESN-X is said to have excellent resistance to solvents and chemical corrosives, alcohols, glycols, petroleum solvents, oils, fats, waxes, most acids, alkalis, water, soap solutions, detergents and salt solutions.

RESN-X comes ready-mixed. It is packaged in 6 gallon containers and is available in 3 standard colors: Tile Red, Utility Green and Medium Gray. Coverage per gallon is approximately 60 sq. ft., at 1/32" and 30 sq. ft., at 1/16" thickness. Can be walked on in 6 hours. Dries hard for traffic in 24 hours.

A complete laboratory report on RESN-X, listing the various acids, alkalis and other substances to which it is impervious, may be obtained by writing Rock-Tred Corporation, care of this publication.

•

Separator Roundup

TO HELP the business community keep a practical eye on the flood of new products now rolling off production lines, more than a thousand new products and services now ready for marketing have just been compiled into a compact 80-page 1949 "New Products" booklet by The N. Y. Journal of Commerce. Gathered from a nationwide survey of manufacturers, the new compilation offers a detailed description of the innovations of more than 750 different manufacturers, classified by industry and completely indexed by name and address of each producer. Copies of this 1949 edition of "New Products" may be had at 50 cents each from the N. Y. Journal of Commerce, 63 Park Row, New York.

Features of the comprehensive compilation that describes the products of over 60 different industries include home roofing that lasts 100 years . . . food processing equipment . . . multi-purpose packaging and vending machines . . . liquid stainless steel . . . prefabrication techniques . . . new industrial safety equipment . . . automatic parking garages . . . perfuming hairbrushes . . . self-raising beach umbrellas . . . stretchless curtains . . . fabric shine remover . . . large-screen video sets . . . crashproof bus gas tanks . . . bouncier golf balls . . . shoe repairing "heel" bar . . . coffee-bean shampoo . . . leather from Icelandic sea fish . . . and a variety of unique plastic items ranging from riding saddles and sailboats to cookie cutters and accordions.

Microscope Illuminator

A NEW MICROSCOPE ILLUMINATOR designed for routine and advanced laboratory work is announced by American Optical Company's Scientific Instrument Division, Buffalo, N. Y.

Correct microscope illumination is essential if the best results are to be

obtained from any microscope. In the new Spencer No. 735 Lamp, no effort has been spared to design an instrument with efficient optics and precise, conveniently located mechanical controls. The lamp furnishes both Kohler and parallel illumination for bright field and phase microscopy, photomicrography, microprojection, and dark field illumination.

All adjustments are external. Ventilating fins on the die-cast aluminum body, coupled with natural draft ventilation, provide cool operation. Rack and pinion focusing adjustment is equipped with two buttons for focusing by either left or right hand. A screw-type tilting adjustment, operating in threaded nut, is placed low and to the rear of the base for handling coolness. The silvered, concave glass reflecting mirror is adjusted by means of three screws. A standard G. E. 100 watt, 115 volt bayonet base bulb is used.

The Spencer No. 735 Microscope Illuminator may be obtained with or without an iris diaphragm which has both knurled ring and knob adjustments. A single filter holder for either ground or blue glasses is available, also a multiple filter holder attachment which accommodates up to four rectangular filters simultaneously.

•

Cooler Booklet

Mojonnier Bros. Co., of Chicago have just announced publication of a new 16-page booklet entitled "COMPACT COOLERS", covering their complete line

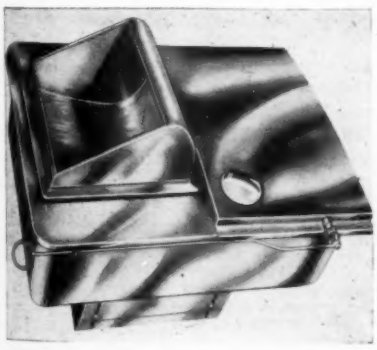
of stainless steel coolers. Fully illustrated with installation views, dairy product application drawings, model photos and design and construction data, the booklet is the most inclusive ever gotten out by the company. Featured is Mojonnier direct flow ammonia cooling. Its advantages are thoroughly discussed and illustrated. This and other cooling data,

drawn from a great many actual plant experiences, make the Mojonnier "COMPACT COOLER" booklet a valuable piece of literature. For a copy write to Mojonnier Bros. Co., 4601 W. Ohio St., Chicago 44, Ill., mentioning Bulletin No. 180.

●

Stainless Steel Weigh Tank

ILLUSTRATED is an all-welded stainless steel weigh tank, manufactured by Walker Welding & Machine Co., and marketed under the trade name "Economy". It is designed and field-proven to meet the demands of the small and me-



dium sized dairy plants—for platform or suspension scales. It is brightly finished, with no hidden or hard to reach corners. The four parts in the valve arrangement can be disassembled in 10 seconds for thorough cleaning — and it is completely under cover when in use. A receiving tank can also be furnished with the "Economy" weigh tank.

For further information write Walker-Welding & Machine Co., care this publication.

●

Centrifugal Pump

CHARACTERIZED by a wide capacity range of up to 60,000 gpm against heads up to 300 feet, an augmented line of horizontal centrifugal pumps, for general purpose pumping of water and alkaline fluids at temperatures up to 300°F., is announced by Peerless Pump Division, Food Machinery and Chemical Corporation. This line of pumps, designated as Peerless Type A, is of single stage, double suction, split case design and is available in sizes from 1¼" through 48". All types of drives may be employed including direct-connected electric motor, diesel, natural gas and gasoline engines, belted drives, steam turbine and combinations of the above.

Type A pumps are regularly furnished in cast iron, but may be obtained in steel, bronze or other alloys.

The case of the Type A is split at the center line of the shaft. The upper half of the case is provided with water seal pipe to the stuffing boxes, air vents and lifting eyes. Drain plugs are provided in the lower half of the case. Stuffing boxes are wide and deep, each box utilizing from 5 to 6 rings of graphited, braided asbestos packing. Generally all Type A impellers are of enclosed double suction design, normally furnished in bronze but available in other materials such as cast iron, stainless steel, monel or other alloys.

●

Washer Development

ASSURED TROUBLE-FREE operation and uniformity of solution strength throughout the can washing operation are two stand-out features of the Diversey Corporation's new improved completely Electric Isofeeder, says the manufacturer.

Automatically providing for regular additions of upkeep to the wash solution, the new Electric Isofeeder is said to prevent peaks and valleys in solution strength associated with hand charging. By controlling solution strength, the new Diversey Electric Isofeeder reduces waste of chemicals, excessive concentrations, scale formation on equipment and milkstone in cans.

Diversey D-Men in the field are trained to install and service the new Diversey Electric Isofeeder, available to dairies and milk plants under a contract arrangement.

and: STRENGTH!

The Key to Egg-Profits:
AVOID BREAKAGE,
Use the STRONG carton.
Write for information:

EggSafety CARTON
DIVISION OF
ROBERT GAIR COMPANY, INC.
New York - Toronto
PAPERBOARD - FOLDING CARTONS
SHIPPING CONTAINERS

CLASSIFIED ADVERTISING
IN THE
REVIEW
BRINGS RESULTS

IF you have any used equipment taking up space, **insert a classified.**

●

IF you need a good man for the plant, laboratory or sales force, **insert a classified.**

●

IF you want a better job or need employment in the dairy industry, **insert a classified.**

●

IF you need or have any special service to perform, **insert a classified.**

RATES

"Position Wanted." 50c. All other advertisements, 5c per word ($1.00 minimum). Keyed ads 15c extra. All payments strictly in advance.

Look around and see what you have to offer or need

WANTS and FOR SALES

Classified Advertising Rates

(Remittance MUST Accompany Order)

Position Wanted
50 word maximum, 50c — 2c for each additional word.

All Other Advertisements
Lightface type: 5c per word ($1.00 minimum).
Boldface type: 10c per word ($2.00 minimum)
(The name and address should be included in counting the words)

Keyed Address
25c additional in the United States.
50c additional in Foreign Countries.

When replying to any of the following keyed advertisements please address replies to:

BOX NO..... AMERICAN MILK REVIEW
92 WARREN STREET NEW YORK 7, N. Y.

(The deadline for Classified Advertising is the 10th of the month preceding publication.)

No classified advertising will be accepted to run with borders or special spacing. All such advertisements are considered "Display" advertising and will be billed at regular display advertising rates. (Rates and mechanical requirements on request.)

FOR SALE — EQUIPMENT

FOR SALE—Practically new Smith Lee B H 40 Cellophane Hooding Machine, Used 1 yr. Perfect Condition. Allegheny Creamery Inc., Jersey Shore, Pa. 4-M-3

FOR SALE—Used V.T. Type Boiler. Size 35½" x 7'9". Capacity 100 lbs. Steam. 10 HP Schwab Boiler. Delta Board of Education, Delta, Ohio. 4-M

PASTEURIZING TANKS—4 Alloy Products 250 gallon Stainless Steel pasteurizing tanks. Model number RVDJP Serial numbers 323,323-A, 323-B, and 323-C. Height 68". Outside diameter 43"—inside 37". Side agitators, bottom drain, steam jacketed. Master ½ HP 3 phase motor and reducer gears. Tanks are in A-1 condition. We will include catwalk and steps if four tanks are purchased. Price—$485.00 each, $1860.00 complete. VISCOLIZER — Union Steam Pump, 450 gallons per hour. Sanitary head and removable packing. Runs in oil. 30 HP motor. Yours for only $495.00. 2 CARTER VACUUM FILLING MACHINES — Serial numbers 138 and 139, Model B 1. Single head equipped with multiple unit to handle 4-8 oz. cans. 2 HP vacuum pump air regulator, air lubricators. Fuller level controls. These machines used one month. $2250.00 each — $4200.00 for both. BRABENDER SEMI-AUTOMATIC MOISTURE TESTER—Model number 695, type FD3. 1/50 HP, 5000 RPM AC-DC motor. Never used. $485.00. Dairy Fresh Creamery Co., 1616 South 8th Street, Minneapolis, Minnesota. 4-M

FOR SALE — Boilers, high and low pressure, new or used, reconditioned and State Inspected. Also new or used smoke stacks, breechings, boiler tubes, pumps, motors, pipe, valves and fittings. Otto Biefeld Co., Watertown, Wisconsin. 4-M

FOR SALE — One 300 gallon Cherry-Burrell Spray Pasteurizer. Stainless Steel inside and outside. Recording thermometer included. One 300 gallon Cherry-Burrell Spray Pasteurizer Buttermilk Machine. Insulated. Stainless Steel inside and outside. Recording thermometer included. One Cherry-Burrell Jr. Cabinet Cooler, Nine Wings Four Sections to each wing; twelve pipes to each section. Hydraulic Lift Included. One 400 gallons per hour Viscolizer; Stainless Steel Head and Pistons; 10 HP Motor. The above are in A-1 Condition. Write or call to see this equipment at the WELCH MILK CO., WELCH, W. Va. Phone—Welch 256. 4-M

FOR SALE — EQUIPMENT

REBUILT — Pasteurizers, Milk Coolers, Bottle Fillers, Ice Machines, Plate Coolers and Heaters, Homogenizers and Bottle Washers. Send us your requirements. Ohio Creamery Supply Company, 701 Woodland Ave., Cleveland 15, Ohio. 4-M-t.f.

FOR SALE — No 8 Creamery Package filler and capper, S. S. bowl, cap. up to 20 quarts per minute, No. 2 plug and cover cap capper heads. 1 - Cherry-Burrell 200 gallon spray pasteurizer, S. S. inside and out, C.C. Series. 2 - R. G. Wright 6 ft. surface milk coolers, 18 - 1" tubes per sec. Tinned copper, brazed joints. 2 - Wright S.S. round weigh tanks - 450 lb. cap. 1 - Toledo dial scale 850 lb. cap. 1 - Lathrop Paulson can washer, 3 cans per minute. 1 - Ladd pressure case and bottle washer, 90 cases per hour. 25 HP Hamburg tubular boiler with oil burner and all controls. Selling because I am no longer receiving and bottling. All of the above is in very good condition. Benner's Dairy, 523 Vine St., Perkasie, Pennsylvania. .. 4-M-2

FOR SALE — Cherry-Burrell Pressure Bottle Washer. Oakes and Burger 200 Gal. Pasteurizer (Stainless Steel). About 30 gross round bottles—no. 2 cap. Cream Separator—600 lb. per hr. Stalker's Dairy, Ravena, New York. 4-M

FOR SALE—1 Cellophane or Parchment bottle hooding machine. 3 years old, good condition. Pt. and ½ Pt. tall square bottles, 48 MM cap seat, and cases. Havenshire Farms Dairy, Fremont, Ohio. 4-M

FOR SALE—100 Gross half gallon standard milk bottles, embossed letters, majority never used. $7.50 per gross, F.O.B. Collinsville, Illinois. Also ½ pint, pint and quart standard cases. THE COLLINSVILLE DAIRY, Collinsville, Ill. 4-M

FOR SALE — At our Warehouse and Shop we have a good selection of Pasteurizers, Coolers, Bottle Washers, Bottle Fillers, Can Washers, Storage Tanks, Heaters, Separators, Weigh Cans, Filters, Ice Cream Freezers, Homogenizers, Vacuum Pans, Pumps, etc. Save money by considering good Used and Reconditioned Equipment. Write or wire your requirements. Lester Kehoe Machinery Corporation, 1 East 42nd St., New York 17, N. Y., Telephone MUrray Hill 2-4616. 4-M

FOR SALE—Used milk bottle crates. Can deface old name and rebrand. Write or phone for present day inventory. Ohio Creamery Supply Co., 701 Woodland Ave., Cleveland, Ohio. 4-M-t.f.

FOR SALE — EQUIPMENT

FOR SALE — 100 gallon Stainless Steel Creamery Package Spray Pasteurizer. Excellent condition and very reasonable. Jewart Brothers, Chaffee, N. Y. 4-M

FOR SALE — 1 - No. 60 DeLaval Cream Separator with 3 phase, 60 cycle, 220 volt motor, belt driven. Bowl rebalanced and overhauled by factory a short time ago. 1 - 300 gal. General Dairy Equipment Oval Koil Pasteurizer, stainless steel lining, white enamel outside, with 3 phase, 60 cycle, 220 volt motor. Used a short time and is in very good shape. 1 - Oakes & Burger 200 gal. round stainless steel Pasteurizer 220-110 V-60 Cycle. 1 - Cherry-Burrell 200 gal. Spray Vat, stainless steel lined. Good condition. 1 - 200 gal. Oakes & Burger stainless steel Pasteurizer. 1 - 300 gal. Oakes & Burger stainless steel long vat Pasteurizer. 2 - 1½" Cherry-Burrell-Flex Flow Sanitary pumps. 1 - 400 gal. Model 41 Cherry Burrell Viscolizer. Practically new. With 3 phase, 60 cycle, 220 volt motor. 1 - 200 gal. Oakes & Burger stainless steel Cheese Vat. 1 - 6-wide Model D Heil bottle washer. Good working condition. 1 - G-70 Milwaukee Filler. 1 - 4 can per minute Oakes & Burger Can Washer. 1 - 80 gal. per min. Pomona Water pump with 3 phase, 60 cycle, 220 volt motor. 1 - 50 gal. per min. Pomona Water pump with 3 phase, 60 cycle, 220 volt motor. 1 - 50 H.P. Erie Economy Boiler. 1 - Iron Fireman Stoker. 2 - wash sinks. 1 - 50 gal. Round Weigh Can. 1 - 1"-no foam milk pump. 1 - 9'-pipe copper water-milk cooler. 1 - 9'-4-1½" pipe high copper cooler. 1 - 9'-6-1½" pipe high copper cooler. 1 - 10'x9'-pipe-2" pipe milk cooler stainless steel-Ammonia. 1 - Section 12'x8 high Copper 2" milk cooler. 1 - Section 13' long x 14-2" pipe high - stainless steel ammonia-milk cooler. Biggins Dairy Company, N. Irvine and Ellsworth, Sharon, Pa. 4-M

FOR SALE — MISCELLANEOUS

ROUTE BOOKS—New - Convenient - One and Two months every other day delivery; also one and two months loose leaf route books; bottle hangers, six different styles, for getting back empties. Write for samples. BONDSON PRESS, 1479 Metcalf Ave., New York 60, N. Y. 4-M-3

FOR SALE—Two 1948 Model Chevrolet Trucks ½ ton with Refrigerated Bodies—Dryice Refrigeration. Capacity Bodies—200 Two Dozen Boxes Novelties. Write: A. Komons, Baby Bear Ice Cream Co., 2136—36th Street, Astoria, Long Island, New York. 4-M

Priced for immediate sale. Used Bottles and Cases, 2500 gross 56mm Cream Tops. 1000 gross 56mm straight necks, All Blown Glass, No. Color. 10,000 New Durham 12 qt. cases. Will sell part lots. Phone or Wire Collect. Ideal Farms, Inc., 960 Belmont Ave., Paterson 2, N. J., Hawthorne 7-5575. 4-M

COAL — Double screened, washed Wes Virginia Pea, Nut, Egg, or Nut slack. This is the coal you have been looking for. Carload Coal Corp., 55 West 42nd St., New York, N. Y. 4-M-

FOR SALE — INSULATED MILK TRUCK BODIES for farm pick-up Write for prices and deliveries. Millington Truck Body Co., Inc., Millington, Mich., Huntington, Ind.; Sparta, Wisc. 4-M-2

FOR SALE—Orange-Ade Base made from fresh oranges. Nothing to add but water, $1.35 per No. 10 tin. Bradway Chocolate Company, New Castle, Indiana. 4-M-t.f.

FOR SALE — MISCELLANEOUS

FOR SALE—Truck lettering and trade mark decals, made for your truck and store advertising. Easy to apply; uniform, distinctive, economical for small or large needs. Write for catalog. Mathews Co., 827 So. Harvey, Oak Park, Illinois. 4-M-6

FOR SALE — Chocolate Powder and Chocolate Syrup for making Non-Settling Chocolate Milk. Your trial order will receive our prompt attention. Bradway Chocolate Company, New Castle, Indiana. 4-M-t.f.

REPAIR SERVICE

THERMOMETERS — We repair Mercurial Indicating Thermometers, dial thermometers and recording thermometers of all makes. Instruments are reconditioned like new. Satisfaction guaranteed. For economical savings ship your thermometers to Nurnberg Thermometer Co., 124 Livingston St., Brooklyn, New York. 4-M-12

POSITION WANTED

POSITION WANTED — Ice Cream and Dairy Accountant — Capable Executive — Familiar with Regulations within Industry — Diversified Experience — Enviable Record of Performance — Seeking Opportunity with organization where talents can be fully utilized. Interesting Salary — Excellent References. Box 126, care this publication. 4-M

POSITION WANTED — Plant manager or working foreman; 16 years experience in milk and ice cream. Age 34. Must be in the East. Best of references. Box 107, care this publication. 4-M

POSITION WANTED — As Manager of Fluid Receiving Plant. Course in Dairy Production, 20 years diversified experience, quality control, field work, procurement work. Knows N. Y. City and N. J. Health Dept. regulations. Or would consider starting new plant now building and get your need milk. Married. References. Will arrange for interview. Box 119, care this publication. 4-M-2

Dairy technician, 32 married. Holding New York tester's license and bacteria license. Presently first man at laboratory of manufacturing plant. 10 years Scandinavian experience and education in the dairy field. Wants position which gives prospects for future near or in New York City. Good references. Box 127, care this publication. 4-M

EQUIPMENT WANTED

WANTED: Large steam pressure sterilizer or shelf drier. Capable of handling 10 lb. steam pressure to 26" vacuum. Give full particulars. Cook Chocolate Company, 4825 S. Rockwell St., Chicago 32, Illinois. 4-M

BUSINESS OPPORTUNITY

FOR SALE — Pasteurized Milk Bottling Plant in Wisconsin. Sales last year over 74,000. Excellent Building and location. Building can be rented or bought with business. Some terms can be arranged. Box 102, care this publication. 4-M-2

FOR SALE — Retail milk business and pasteurizing plant in resort area of New York State. $30,000.00 takes this money making proposition. P. O. Box 651, New York 7, N. Y. 4-M

FOR SALE—Dairy plant, equipment, and routes in sunny Tucson, Arizona. Handling approximately 1000 gallons daily through wholesale outlets. Selling to settle estate. Write C. C. Pendergast, Route 1, Box 978, Glendale, Arizona. 4-M

Profitable Dairy Business with Dairy Bar in Michigan. Terms if desired. Write Box 122, care this publication. 4-M

FOR SALE — Pasteurizing plant in town of 18,000. Selling wholesale and retail. Milk, cream, ice cream, butter, cottage cheese, etc. Dairy bar in front part of plant. Five trucks; two 1948 models, one 1941, one 1940, and one 1936. Business last year $76,000. Box No. 117, care this publication. 4-M

Modern Grade A Dairy and Ice Cream Plant. 6 Dairy, Ice Cream and Luncheonette Stores. Mostly new equipment in plant. All equipment in plant and stores $75,000. Terms. City of 100,000 population in Nebraska. Box 118, care this publication. 4-M

FOR SALE — Dairy Plant and Equipment, Five Trucks. Only Dairy in city on main highway. Receiving fifty cans daily. Wonderful opportunity, also for ice cream. Everything in fine shape. Excellent business and location. Ill health. Box 121, care this publication. 4-M

HELP WANTED

DAIRY ENGINEER — Thoroughly familiar with bottling plant equipment. Able to make layout drawings. Considerable traveling, with headquarters in New York. Frequent customer contacts. Some equipment installation and service. State age, complete experience and salary required. Box 120, care this publication. 4-M

HAVE YOU READ THE WANT ADS?

OF EVENTS TO COME

American Dry Milk Institute—Annual convention, Edgewater Beach Hotel, Chicago, Ill., April 21-22, 1949. Roud McCann, 221 N. LaSalle St., Chicago, Ill., Secretary.

National Cheese Institute—Annual meeting will be held April 21 at the La Salle Hotel in Chicago. Executive secretary, E. W. Gaumnitz, 110 N. Franklin St., Chicago 6, Ill.

Food Distribution Exposition—First national show covering food distrbution field will be held at the auditorium, St. Louis, Mo., May 30 and June 1 in connection with convention of United States Wholesale Grocers Association. For registration and other details, Clapp and Poliak, Inc., 350 Fifth Ave., New York City.

Illinois Dairy Products Association — Annual summer outing will be held at Nippersink Lodge, Richmond, Ill., June 13 to 15. Secretary, M. G. Van Buskirk, 309 Jackson Blvd., Chicago 6, Ill.

National Dairy Council — Summer conference, Edgewater Beach Hotel, Chicago, Ill., June 27-29, 1949. Milton Hult, 111 N. Canal St., Chicago, Ill., President.

Florida Dairy Industry Association — Annual meeting is tentatively scheduled to be held in Tampa, Fla., June 30, July 1 and 2. Secretary, E. T. Lay, 39 W. Monroe St., Jacksonville, Fla.

Institute of Food Technologists—Ninth annual meeting to be held in San Francisco, Calif., during the week of July 10-15, 1949. Food equipment and supplies will be exhibited in San Francisco Civic Auditorium during week of convention.

West Virginia Dairy Products Association convention will be held August 1 and 2, 1949 at the Greenbier, White Sulphur Springs, West Virginia. John J. Slavins, secretary, 467 Chestnut St., Morgantown, W. Va.

World Dairy Congress—Twelfth Meeting, Stockholm, Sweden, August 15-19, 1949. Waldemar Ljung, Postbox 642, Stockholm, Sweden, Secretary.

Iowa Milk Dealers Association—Annual convention, Hotel Fort Des Moines, Des Moines, Iowa, September 14-16, 1949. John H. Brockway, 906 Walnut Bldg., Des Moines 9, Iowa Executive Secretary.

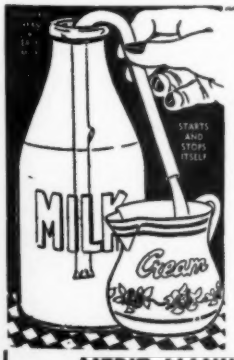
International Dairy Exposition, Inc. — First annual International Dairy Exposition, State Fair Grounds, Indianapolis, Ind., October 8-15, 1949. R. D. Hammer, Room 633, 130 East Washington St., Indianapolis, Ind., Secretary.

Wisconsin Buttermakers and Managers Association—Annual convention to be held at Chippewa Falls, Wis., October 11 and 12. Elmer Radtke, Reedsburg, Wis., executive secretary.

Indiana Dairy Products Association — Annual convention, Claypool Hotel, Indianapolis, October 17-19, 1949. R. A. Larson, 633 Board of Trade Bldg., Indianapolis 4, Ind., Executive Secretary.

International Ass'n. of Milk and Food Sanitarians—Annual convention, Deshler-Wallick Hotel, Columbus, Ohio, October 20-22, 1949. George A. West, 44 Marshall St., Rochester 2, N. Y., Secretary-Treasurer.

Milk Industry Foundation — Annual convention will be held in Los Angeles, Calif., October 24 to 26, 1949. Executive director, B. F. Castle, 1001 Fifteenth St. N. W., Washington 5, D. C.



AN EFFECTIVE BUSINESS BUILDER
Useful — Interesting

MAGIC CREAM SIPHONS for home use, remove cream from bottled milk to use with coffee, cereals and desserts.

PLEASE OLD CUSTOMERS — WIN NEW ONES

Leading dairy firms find Magic Cream Siphons a welcome sale booster aid. Homes using a cream siphon consume more milk when they learn how many foods are improved by the liberal use of milk instead of water in preparing.

Free sample for round or square bottles
Glass $15.00 per gross or $100.00 per 1000
Aluminum $17.50 per gross or $115.00 per 1000
Complete Satisfaction Guaranteed

MERIT MANUFACTURING COMPANY
3455 EAST 150TH STREET — CLEVELAND 20, OHIO

Better **DRY MILK**
AT LOWER COST
DRY MILK MACHINES
Built in Five Sizes

The patented, glass-smooth, "20-year cylinders" give years and years of maximum production of a superior dry milk at the lowest possible cost.

Many other exclusive features insure long life with low steam and power costs.

Complete details upon request.

OVERTON MACHINE COMPANY
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Blends Cheese With Dates

Chatsworth, Calif. — Makers of cottage and cream cheese can now offer their customers a date blended cheese with all its tasty flavor and health giving contents that can be used for salads and spreads for children and adults alike.

Date Associates of California have recently announced a new product in the form of dry-crisp dates that eliminates the high cost and messy nuisance of handling wet macerated dates.

"Date-Nibbles", as they are called, are pure tree-ripened dates with 97% of the moisture content removed. They are cut to convenient and practical sizes for cheese blending, and keep indefinitely in their original container without refrigeration. These date pieces contain approximately 50% natural fruit sugar and will not curdle the cream.

It is claimed that when the dry-crisp "Date-Nibbles" are brought in contact with the moist cheese, the pieces swell and soften in two to three hours as they rehydrate. Their natural flavor, consistency and color are restored along with the original health-giving qualities. The date pieces also retain their firmness and do not disintegrate or "mush up".

The chief advantages claimed for "Date-Nibbles" is the ease with which they are used and their economy. The dairyman merely blends the desired amount of "Date-Nibbles" into the cottage or cream cheese — he saves the labor of handling. And one pound of "Date-Nibbles" is equivalent to two pounds of wet dates.

It is also claimed that cottage or cream cheese blended with "Date-Nibbles" has a new sales appeal, not only for the appetite and health, but for the eye as well.

A generous sample of "Date-Nibbles", together with literature, may be had free by writing to Department 201, Date Associates of California, Chatsworth, California.

●

Golden State Personnel Changes

San Francisco, Calif. — Appointment of G. C. Hallawell as domestic sales manager of the dry milk division of Golden State Company, Ltd., was announced recently by Paul Young, company president, in San Francisco. Headquarters of the concern are at 425 Battery Street, San Francisco 11.

Hallawell, who recently resigned an executive position with a Chicago dairy firm, was formerly associated with Golden State for 13 years. From 1932 to 1936 he was office manager at the company's Sacramento branch and from 1936 to 1945 he was assigned to analytical and statistical duties and in addition was a sales specialist the last two years he was with the company.

His present duties include the supervision of domestic sales of dry milk products, manufacturing cream and bulk condensed milk and bulk butter, together with other duties as assigned by E. W. Littlefield, manager of the dry milk division.

Promotion of John D. Mordoff, Southern Division Personnel Manager for Golden State Company, Ltd., to Assistant District Manager of the company's Los Angeles marketing district, was likewise announced. Mordoff will assist D. L. McGaffey, District Manager.

Mordoff started with the company twenty-four years ago as a retail milk delivery man and has served as a supervisor and branch manager. For the past four years he has been personnel manager for the southern division, which has its headquarters in Los Angeles.

XUM

Make it easier... make it better!

Make more money from your chocolate flavored dairy drink

Delicious flavor, Uniform color, FROM TOP TO BOTTOM

ECONOMICAL NEW POWDER CONTAINS A CARRAGEENIN-BASED STABILIZER

It *will not* "settle out"!

● ***FINER FLAVOR*** . . . the deep-down delicious "chocolaty" taste of Kraft Stabilized Chocolate-Flavored Powder results from a superb blend of top-grade, finely-ground cocoa and sucrose . . . brought to flavor perfection by a dash of salt and vanillin.

● ***LOW VISCOSITY*** . . . drinks made with Kraft Powder have nearly the same viscosity as fluid milk! They pour smoothly, leave on the tongue no filmy, sweetish after-taste to destroy the appetite for "seconds."

● ***EASY TO USE*** . . . no mess, no bother. No sticky syrup to scrape from the sides of a jug or tin. You can get the last spoonful of powder from its container. Quickly and easily soluble.

● ***ECONOMICAL*** . . . the price is amazingly low. Ease of handling saves time and money in manufacturing. Never fails, when properly used, to make a delightful, fast-selling chocolate drink.

● ***LASTING SUSPENSION*** . . . This finer Kraft product contains a carrageenin-based stabilizer. *It will not "settle out"!* Color distribution is even, uniform. There are no color layers or "marbling" to destroy eye appeal.

Find out more about this amazing product. Call or write the Kraft branch in your area today. Once you try it, you'll agree that Kraft Stabilized Chocolate Flavored Powder makes a better dairy drink . . . easier. Kraft Foods Company, Department AM-8, 500 Peshtigo Court, Chicago 90, Illinois. Branches in all principal cities.

KRAFT

STABILIZED CHOCOLATE-FLAVORED

POWDER

for making chocolate-flavored dairy drinks

New

Stainless Steel MULTI-PASS HEAT EXCHANGER

with the SMALLER PLATE

Entirely new in design, the CP Stainless Steel MULTI-PASS Plate Heat Exchanger with its smaller plates lends itself to more flexible flow arrangements thus permitting use of minimum surface with minimum investment for the particular duty whether it be heating, cooling or HTST pasteurizing.

Creamery Package now makes it possible for smaller plants to afford all the advantages of the larger plate heat exchange units. It also makes it possible for the large plants to have a most economical heat exchanger for single or double duty heating or cooling applications on milk, cream, ice cream mix and evaporated milk.

Ask for full details on the new, compact, efficient CP Multi-Pass Heat Exchanger *with the smaller plate!*

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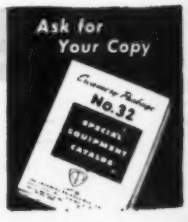
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